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Honey Column.

CITY MARKETS.

CHICAGO.—*Honey.*—Fancy white, 12@13; No. 1 white, 11@12; fancy amber, 10; No. 1 amber, 7@9; fancy dark, 8; No. 1 dark, 7@8; white extracted, 5@7; amber, 5@6; dark, 4½@5; beeswax, 26@27. There was a little more trade in honey this month, but the sales are below average for season of year.

R. A. BURNETT & CO.,
Dec. 18. 163 So. Water St., Chicago, Ill.

PHILADELPHIA.—*Honey.*—Fancy white, 13@14c; No. 1 white, 12@13; fancy amber, 11@12; No 1 amber, 9@10; fancy dark, 8@9; No. 1 dark, 8; white extracted, 6@6½; amber, 5; dark, 4; beeswax, 27. Honey not selling quite so freely now so near holidays.

WM. A. SELSER,
Dec. 21. No. 10 Vine St., Philadelphia, Pa

BUFFALO.—*Honey.*—Fancy white, 10@11; No. 1, 9@10; fancy amber, 7@8; No. 1 amber, 6@7; fancy dark, 7@8; No. 1 dark, 6@7; white extracted, 5@5½; amber, 4@4½; dark, 3@4; beeswax, 22@28. The demand for fancy and not white comb is excellent; but 10c is about top, occasionally 11c, at which liberal amounts can be placed. Other grades also have to be pushed hard, but sell as quoted.

BATTERSON & CO.
Dec. 18. 167, 169 Scott St., Buffalo, N. Y.

MILWAUKEE.—*Honey.*—Fancy white, 13@14; No. 1 white, 11@12; fancy amber, 9@10; white extracted, 6@7; amber, 5@6; dark, 4@5; beeswax, 24@25. The supply of honey is very fair and the quality very nice as a rule. There is a marked improvement over former years, showing that apiarists are learning the art of attractiveness. The demand is only moderate—indeed, we are rather obliged to say dull; but think after the mania—"doll-baby and tin-whistle" trade—is past, a better demand will come or the substantial things—the best things.

A. V. BISHOP & CO.,
Dec. 19. Milwaukee, Wis.

CHICAGO.—*Honey.*—We quote an active demand for fancy white comb honey. Prices as to style of package - 13@14; No. 1 white, 12@12½; amber 11; dark, 8@10; extracted, white, 6@7; amber, 5@6; dark, 4½@5; beeswax, 26. Liberal advances on consignments, or will pay cash. S. T. FISH & CO.,
Dec. 26. 189 South Water St., Chicago, Ill.

KANSAS CITY.—*Honey.*—Fancy white, 13@14; No. 1 white, 12@13; fancy amber, 11@12; No. 1 amber, 10@11; fancy dark, 9@10; No. 1 dark, 8@9; white extracted, 5½@6; amber, 5@5½; dark, 4@4½; beeswax, 22@25. C. C. CLEMONS & CO.,
Dec. 19. 423 Walnut, Kansas City, Mo

CLEVELAND.—*Honey.*—Fancy white, 12½@13; No. 1 white, 11@12; extracted, white, 6@7; amber, 5@5½; beeswax, 22@25. Honey market slow, especially comb. Extracted in good demand.

WILLIAMS BROS.,
Dec. 18. 80 & 82 Broadway, Cleveland, O.

DETROIT.—*Honey.*—No. 1 white, 12@13; fancy amber, 11@12; No. 1 amber, 10@11; fancy dark, 9@10; No. 1 dark, 8@9; white extracted, 5½@6; amber, 5; dark, 4@4½. Beeswax, 25@26. M. H. HUNT,
Dec. 21. Bell Branch, Mich.

NEW YORK.—*Honey.*—Fancy white, 11@12; fair white, 9@10; buckwheat, 7@8; extracted white clover and basswood, 5@5½; California, 6; southern, 50c per gal.; beeswax, in fair demand at 26-27. The market is quiet and inactive; demand light, and plenty of stock on the market.

HILDRETH BROS. & SEGELKEN,
Dec 22. 28 & 30 W. Broadway, New York.

SAN FRANCISCO.—*Honey.*—Fancy white, 10@11; No. 1 white, 8@9; fancy amber, 7@8; No. 1 amber, 5@6; fancy dark, 4@6; No. 1 dark, 4@5; white extracted, 5½@5¾; amber, 4@4½; dark, 2½@3½; beeswax, 23@25. Honey is in light demand, unless for white, which is rather scarce. Stocks are light. Beeswax, stock light, but demand not active.

HENRY SCHACHT,
Dec. 16. San Francisco, Cal.

MINNEAPOLIS.—*Honey.*—Fancy white, 11@12; No. 1 white, 10@11; fancy amber, 9@10; No. 1 amber, 8@9; fancy dark, 7@8; No. 1 dark, 6@7; white extracted, 6@7; Utah white extracted, 5@5½; amber, 5@5½; dark, 4@5; beeswax, 23@26. Market fairly steady for comb, and better for extracted than for some time.

S. H. HALL & CO.,
Dec. 19. Minneapolis, Minn.

CINCINNATI.—*Honey.*—No. 1 white, 12@14; fancy amber, 10@12; white extracted, 5@6; amber, 4@5; dark, 3½@4; beeswax, 22@25. Demand is slow for all kinds of honey, and supply is fair.

wax, 25@26. CHAS F. MUTH & SON,
Dec. 22. Cincinnati, O.

BOSTON.—*Honey.*—Fancy white, 13@14; No. 1, 11@12; white extracted, 7@8; amber, 5@6.

E. E. BLAKE & CO.,
Dec. 18. Boston, Mass.

COLUMBUS.—*Honey.*—Fancy white, 14; No. 1 white, 13; fancy dark, 8@10; No. 1 dark, 8@10.

THE COLUMBUS COM. & STORAGE CO.
Dec. 18. 409-413 N. High St, Columbus, O.

FOR SALE.—6000 lbs. basswood and white clover extracted honey, in 12-lb. cans, price 6½c per lb.; the lot at 6c. W. H. YOUNG, Ono, Wis.

Quantity lots of water-white extracted and gilt-edged comb honey constantly on hand at bottom prices. Safe arrival guaranteed.

B. WALKER, Evart, Mich.

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FRANK MCNAY, Mauston, Wis.

FOR SALE.—Ten barrels good white-clover extracted honey at prices to suit the times. Can put it up in any style of package desired. Write for price, stating quantity wanted. Send stamp for sample. EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

FOR SALE.—15 boxes fine heartsease extracted honey. Price per lb., 6c. Also 14 boxes last season's honey at 5c a lb. Boxes have two 60-lb. cans each.

eitf JNO. A. THORNTON, Lima, Ill.

FOR SALE.—3480 lbs. fine ripe basswood and 2520 lbs. amber honey, new cans and cases, $420.00 for the lot. ELIAS FOX, Hillsboro, Wis.

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JOSEPH NYSEWANDER, Des Moines, Iowa.

The Bee-Keeper's Review

for December, 1896, contains a double-page illustration of four out-apiaries located near Flint, and managed by one man for comb honey, with almost no help. A portrait of the owner, and a description of his methods, are also given. There is also a fine picture of bees secreting wax and building comb, made from a photograph taken by the editor. Mr. Taylor has a long article on hives. There is the review of foreign journals by F. L. Thompson; Hasty's three-page review of the American journals; the usual extracts and editorial comments, etc.

The REVIEW is $1.00 a year, or $1.25 for the REVIEW and the book, "Advanced Bee Culture;" $1.75 for REVIEW and a fine tested queen—the queen to be sent early in 1897. New subscribers get the December issue free.

W. Z. HUTCHINSON, Flint, Mich.

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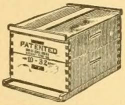

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
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STRAY STRAWS
FROM DR. C. C. MILLER.

ISN'T FIVE DOLLARS a pretty high price to figure for a swarm of bees without any hive, as H. S. Jones reckons on page 892?

L. A. ASPINWALL measured many queen-cells at the time the egg was laid in them, and in every instance he found the measurement across the mouth of the cell was the same as that of a worker-cell.—*Review.*

SEVENTY TO EIGHTY PER CENT as much comb as extracted is what A. F. Brown says he can produce, and he has produced both kinds by the ton. He thinks more comb honey should be produced in the South.—*American Bee Journal.*

AMERICAN BEE JOURNAL reports the case of a young lady whose hands are poisoned by propolis when scraping sections. Scraping sections produces on my wife something like hay fever.

ELIAS FOX, p. 890, says a swarm with a clipped queen will invariably return to the old hive "unless they are joined by another swarm that *has* a queen." He might add, as another exception, that they may enter any hive to which a swarm has returned but a short time before.

HASTY says it's to please the dealer that sections less than one pound are worked for, and he thinks the dealer will refuse to be pleased the moment the point is reached where nobody will admit they are pounds. Correct. [Perhaps partly; but the dear bee-keeper has something to do in the matter. See my answer to another Straw on this subject.—ED.]

I AGREE with Elias Fox, p. 889, that "Nature has forbidden" the bees to make holes in grapes, the only question being how. *I* think, by making it a physical impossibility; he, that they are abstainers on moral grounds, if I understand him. It's a small matter anyhow. We agree on the main question, that bees *don't* make holes in grapes, and that's *not* a small matter.

THE *Northwestern Christian Advocate* interviewed officials of 19 leading railroads as to drinking-employees. In every case, drinking while on duty is absolutely prohibited; and with the majority of roads it is clearly intimated that employees who wish to retain their positions, must refrain from the use of intoxicants when *off* duty as well.

E. E. HASTY, in *Review*, comes to the support of A. I. Root, and says, "And we'll settle on the banks of the pleasant O-hi-o," is the authentic version. Say, what business have you Ohio fellows to know how we eastern people sang about going west to Ohio? But it may be that when the emigrants from Pennsylvania reached Ohio they couldn't express their feelings without interpolating "pleasant."

A. B. ANTHONY thinks 17 days for development of a queen 35 years ago was all right, but that it has been reduced to 15 now, because, when the old queen leaves with a swarm, the one that matures first kills the rest, so the early-maturing trait has been perpetuated and intensified. But, friend A., if two days have been cut off in 35 years, it must have taken about 35 days for a queen to hatch in the time of Columbus, and I leave you to figure what it must have been in the time of Samson.

SOMNAMBULIST—the one and only—says in *Progressive* that he has private customers not only as far as Texas and Idaho, but as far north as Chicago and as far east as Ohio, and, with a twinkle of defiance, he says something about "next door to the Home of the Honey-bee." Say, Bro. Root, can't we some way combine forces and down that fellow Sommy before he establishes regular agencies at Marengo and Medina? [If he has done it already, we'll establish an agency at *his* door, to get even. But, where, oh where! is Naptown and where is Dreamland?—ED.]

FROM OUT the none too full ranks of our lady bee-writers passed away, Nov. 21, Mrs. A. L. Hallenbeck. Judged by her writings, she was a woman of beautiful spirit. [Mrs. A. L. Hallenbeck's picture appears in the group of bee-keepers as they assembled at Lincoln—see No.

6. The manner of her death — being thrown from a wagon during a runaway—was peculiarly sad. Although she had not figured very prominently in the columns of GLEANINGS, she had written not a little for some of the other bee-periodicals. I well remember her kindly face and pleasant handshake at the convention. —ED.]

PROF. COOK says, in *American Bee Journal*, "I think there is every thing to encourage the breeder in bee-keeping. I think that there has been very little real scientific breeding yet practiced. If I am right it is a new field; and a wider, surer success awaits the earnest, conscientious, capable artist in this line of work." [Prof. Cook may be right, but at the same time I can not help feeling that Doolittle, Alley, and the Atchleys have got down pretty near to the scientific methods of queen-rearing.—ED.]

GRAVENHORST indorses GLEANINGS' advice to melt candied honey slowly, and adds: The more slowly the crystals are dissolved by mild heat, the less the honey loses in aroma and color. [I do not know when we gave such advice; but all the same it is good. Our method of liquefying candied honey in square cans is to immerse a number of cans within an inch of their tops in a vat of hot water, the latter being heated by a jet of steam, and turned off. The cans are allowed to stand thus about half a day, when the honey will be brought to a liquid condition. It is unnecessay to state that we remove the caps before liquefying.—ED.]

"AS REVEALED by an inquiry in the *American Bee Journal*, the importation of *Apis dorsata* by the U. S. Government is favored by such distinguished apiarists as Prof. A. J. Cook, Mrs. L. Harrison, E. France, J. M. Hambaugh, W. G. Larrabee, G. M. Doolittle, and G. W. Demaree."—*American Bee-keeper*. But please add, worthy *A. B. K.*, that Mrs. Harrison wants it for the Seminole Indians, who never keep bees in a hive; that Larrabee says, "Yes, if they would not turn out like the English sparrow;" and that, while Demaree would be glad to have it done, he fears it might fail. Also that, while these 7 more or less favor it, 14 others on the same page oppose it.

HUTCHINSON thinks there may be some progress in bee-keeping, but hardly expects any thing important. Now look here, Hutchy, no one was hunting for or expecting the extractor when it came. How do *you* know that surprises of that kind are all over? [It is true, no one was hunting for or expecting the extractor when it came. The same may be said of comb foundation. But I want to tell you that I am hunting for and *expecting* some startling developments in the way of deep-cell foundation, or what some might call partially drawn comb, said comb being within the reach of every bee-keeper, and as light per square foot as the thin foundation. Hip, hip, hur— Well, I guess I won't just yet. Perhaps the whole thing—well, I am not going to say any more.—ED.]

WHICH IS NICER for the table—square or oblong sections? In *American Bee Journal*, 8 say square; 3, oblong; 7, either; 4, to suit the shape of the plate. [I wonder if the eight ever saw an oblong and a square section side by side. So far as I am concerned I should be inclined to agree with the seven. Difference, if there be any, would be a matter of notion or taste. A square section will not remain on the table very long before a slice will be taken off from one side or end, and then it will look oblong. The oblong will probably have a slice taken off from one end, then it will be square. I do not suppose the housewife ever thinks which looks better on a plate—a square or oblong cake.—ED.]

MR. EDITOR, you are altogether too modest in your statement on p. 890. I think no one in the last 40 years has disputed that it is a common thing for workers to hold young queens in their cells and feed them there. When there's piping and quahking in a hive, lift out the comb and you'll see the quahking queens thrust their tongues through the slit. "Doolittle on Queen-rearing," p. 77, says, "Put a little honey around the end of the cell, so that she can feed herself before coming out of the cell." [I did not mean to be so modest; but I did not wish to be apparently too positive regarding the number of queen-cells that had been observed on one comb. Yes, come to think of it, it is pretty well established that queens are sometimes confined in the cells.—ED.]

HON. R. L. TAYLOR put on four colonies 452 lbs. of unfinished sections, fed 378 lbs. of honey, and took 680 lbs. finished sections—1.7 lbs. honey for each pound gained.—*Review*. [The results obtained by Mr. Taylor I think are more favorable than the results generally secured by others in feeding back. In some cases I believe it has been reported that it was necessary to give two and even three pounds of honey for every pound of finished comb honey received back. While there is a good deal in knowing how and when to feed back, as a general rule the average bee-keeper had better let the practice alone. He will usually get more money in the end by cutting out his unfinished combs and selling them as chunk honey, and selling the extracted at market price, than to try to set good money chasing after poor.—ED.]

SOME ARGUE that it's all right to sell sections by the piece, there being no deception in the case. Well, then, if it's right for the grocer to sell them that way, why isn't it right for the grocer to buy them that way? Just tell me that, will you? [Say, doctor, what do you want to rake up that old bone of contention for? I won't argue with you, at all. Yes, I will, just a little bit. You can not get around the fact that bees fill a thin comb quicker, and that the honey is of better quality. Deep cells of honey do not ripen as well.

The grocer may be a wee bit dishonest, without meaning to be so; but I believe the bee-keeper in many cases finds there is more money in the production of thin combs, outside of any special call for them on the part of the buyers.

Oh, yes! it is all right for the grocer to buy what it is right to sell. We will pull together here. But say, doctor, if you think the thin 4¼ sections are in line with the sunken bottles, what objection, outside of the fact that they won't fit your super, would you have to a tall section that would hold as much as your 1⅞x4¼ x4¼, and still be only 7 to the foot thick?—Ed.]

Ridge-Pole Musings

By R. C. Aikin.

Of names there is no end. We have the "Rambles," "The Sunny Southland," "Pickings by the Way," and others, and now comes "Ridgepole Musings." At first thought you may call this a high-sounding name; yet in choosing it we have no thought of a "loud" or egotistical heading or title. J. H. Martin appropriated for his general heading the title of "Rambler," a very characteristic name. "The Sunny Southland" also was peculiar, and somewhat of an index to the writings, though many subjects were treated. It was suggested to the writer that "The Woolly West" would be a good heading, but to me it seems inappropriate. Geographically we are located near the center of the United States, not in the West. Again, we are well nigh the top of the ridgepole or backbone of the continent—the Rocky Mountains. Since, then, our point of view is both central and elevated we may speak of many things; and in speaking we desire to be guided to the truth, and to say only that which may be right and for the good of all concerned.

ALFALFA.

There is a great amount of misunderstanding in regard to alfalfa; but before we enter upon the discussion of the plant itself, let me speak of some general conditions in the districts where the plant grows.

There is—or seems to be—a prevailing opinion throughout the East, that Colorado and other alfalfa-growing States are a sort of bee-keeper's paradise. I wish to give the fraternity a true conception, if possible, of the facts. Let us begin at the Missouri River and look over Nebraska and East Colorado to the mountains. Think of the slope of the country from the river westward, beginning at a rise of 6 or 7 feet to the mile; and as you pass on westward the rise increasing until at or near the mountains there is a rise of about 20 to 30 feet to the mile. The average rise beween Omaha and Denver is over 9 feet to the mile. The rise is more gradual at first, but quite rapid near the mountains. Now picture in your mind an ordinary rolling country with hills (not bluffs, but a gentle rise from the streams) being from 40 to 100 or more feet high. The slope from the streams may be so gradual as to make a nice farming land and terminate in a tableland, or it may be variegated; but whatever the general characteristics of the face of the country, do not forget that there is a *general* slope, with all streams pointing and flowing rapidly in the one general direction.

Now, a country to successfully irrigate must have the rapidly falling streams and general fall of the face of the country. The ideal place to irrigate would be a country that, in common expression, would be called level, but in fact has sufficient fall to make *good drainage*, the highest points or ridges between streams being low enough that ditches taken from the streams may be carried to the tops of the ridges without having to be many miles in length. Irrigation is accomplished by taking the water from the streams by means of the ditch, with sufficient grade to make the water flow nicely and yet not wash or cut in the channel. Thus the water is brought above (on higher ground) that to be watered, and then carried in smaller ditches and divided and subdivided and spread over the land.

It seems that the general air-currents have an eastward trend. These currents carry moisture, the moisture being caused to precipitate by coming in contact with other or contending cold currents. The combination of heat, cold, moisture, and air-currents brings about our rainfall. Now, the general trend of air-currents being from west to east, they must pass over the Rocky Mountain chain that runs north and south. There is on the mountain-tops intense cold, as at all high elevations, and this cold condenses the moisture in the air, causing it to fall upon the mountain-range and not upon the plain. The air, in crossing the mountain-range, seeks, or is drawn to, the depressions or valleys, carrying more moisture to some parts than others. Reasoning from this you will see that there can not be a full precipitation along the east side of the range; and the higher and more extensive the mountains, the more moisture they catch, and the more dry will be the territory lying east.

Alfalfa is a clover, and a perennial. The other clovers are more or less strictly biennials, and must be continually reseeding if a meadow

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is to remain in full growth; but alfalfa differs in the two essential features of lasting for ever, and having a very long thick tap-root that penetrates far in search of moisture. Now, remember that there is a vast territory within the mountains, and east of them, that is subject to drouth because the mountains "catch the moisture" in the high altitudes, and you will see the necessity of a plant that can stand extremes of heat and drouth. Here let me quote from a report of the Kansas State Board of Agriculture as I find it in the *Denver Times* Year Book and Almanac for 1896, page 226:

"Alfalfa is one of the very ancient forage-plants, having been cultivated by Greeks, Romans, and Egyptians in very early times." [Note that irrigation has been practiced in Egypt for ages, being in vogue at the time of Israel's sojourn there]. "In later periods, and especially within the present century, it has been grown by nations in the warmer parts of Europe. It has been known in South America for a long time, and has been cultivated by the people in the arid regions along the west coast. From this region it was carried to Mexico and California, where it has proved a veritable Godsend. Its especial quality is that it can stand a prolonged heat and drouth."

"Ingersoll, of the Nebraska Agricultural Experiment Station, says, 'There is not a crop raised as a farm crop that will pay better returns in cash per acre. Alfalfa, with corn, should be the watchword hereafter in Nebraska.' Alfalfa is a rather slender-growing, branching plant, with leaves much smaller than those of the small June and mammoth red clovers. It is of a peculiar dark, rich green color, and is a marked feature of any landscape where one can obtain an extended view. Like other plants of this class, it has a single strong tap-root, which throws off numerous small branches as it passes downward. It goes to a great depth in search of moisture. Roots have been known to penetrate to a depth of over twenty feet in an open, porous soil. On account of the size and toughness of the root it is not easily broken. For this reason, land selected for alfalfa should be devoted to that crop for a series of years. When broken up, however, the soil is in most excellent condition for wheat, potatoes, or almost any crop. Alfalfa is a nitrogen-producer, and hence improves the land on which it is grown. All clovers, and especially alfalfa, are valuable for the express purpose of renewing the fertility of the soil."

"An Ohio alfalfa-grower, after ten years' experience, says that the land should be copiously irrigated before sowing the seed. This insures prompt and complete germination. This is a point of vital importance, for without a dense and uniform stand of plants it is not possible to make a high quality of alfalfa hay. Another advantage secured by irrigation before seeding is that it supplies the earth with a reservoir of moisture sufficient to sustain the plants in unchecked and vigorous growth until they are strong enough to bear irrigation without injury. The critical time with alfalfa is the first six weeks of its growth. By soaking the earth before seeding, the plants make vigorous growth until they are ten or twelve inches high, after which they may be irrigated with safety."

"Alfalfa is not safe, as pasture, for either cattle or sheep. This matter has been thoroughly tested until it is admitted that the only safe way is to keep herds out of alfalfa-fields entirely. It is true, however, that both cattle and sheep will sometimes feed on alfalfa pasture for days without ill results. But sooner or later trouble arises. Under certain conditions sheep become inflated like balloons, and die suddenly from eating moist alfalfa. The same Ohio farmer says that horses and swine can be pastured on alfalfa with entire safety, and with profitable results."

It appears, then, that alfalfa is almost a necessity in this arid or semi-arid country, because it is the only forage-plant that can cope with and endure the adverse conditions of climate. It is a splendid crop for hay, both to fatten and to produce milk. For horses that are laboring it is a little too "washy," so that intended for *horse hay* is allowed to mature and become rather woody, being cut at about full bloom; but if wanted for cow feed it is cut before blooming or just as it has fairly begun to bloom. It is rather heavy in growth, being between red and sweet clovers, so if allowed to reach a mature state the stems become quite woody. Horses will eat the woody stems quite freely, but not so freely as mules; but cows will not eat the hard stems unless driven by hunger, so for cow feed it becomes necessary to cut early. For a rather soft fat, and for milk and butter, alfalfa hay is a very fine seed; but to pasture cattle and sheep it seems to be a failure because of bloating. It is *very risky* to turn cattle upon alfalfa.

Now as to the extent to which this plant is cultivated. Observe that there is a vast territory between the mountains and the Missouri River. It is out of the question to think of growing alfalfa or any thing else near the mountains except on the bottom lands, and little there unless irrigated. I have been told that there is quite a little grown in the vicinity of Garden City, Kansas, without irrigation; but it is on bottom land that is all underlaid with water but a few feet below the surface.

The rainfall increases as we get away from the mountains, being more or less in certain districts, owing to height and extent of mountains and distance north or south, until there is sufficient to produce crops with the rainfall alone. East Colorado and West Kansas and Nebraska, to near the center of these States, are and will be subject to drouth in greater or less degree, as the seasons are generally more or less dry, but always drouthy.

It is evident, then, that the growing of alfalfa (or any thing) can not succeed in Colorado, and only to a very limited extent in West Kansas and Nebraska, except where watered. The streams are *utterly inadequate* to supply the water necessary to cover this whole area, even if all that flows throughout the year be used; and when we remember that the greatest water-supply often comes before it is needed or can be used, you will at once see that *only a very small portion* of the country can be set to alfalfa.

Let me here repeat what I have heretofore written of the alfalfa districts in Colorado (or elsewhere in the mountain districts), that the places where bees will do well on alfalfa pasturage are as garden-spots or dooryards in *comparison* with the *vastness of the country in which they are found.* The irrigated districts are confined almost exclusively to the valleys. True, water is carried in ditches for 5, 10, 20, and even 50 to 75 miles or more. Many ditches are made 10 to 20 feet wide on the bottom, and carry a depth of 3 to 6 feet.

Continued.

RAILROADS AND COMB HONEY.

COMMISSION MEN AND THE HONEY-PRODUCER; BOTH SIDES FAIRLY SET FORTH.

By C. F. Muth.

This would be a nice world of ours if everybody knew what he was about and would govern himself accordingly. As it is, we have got to have a certain amount of patience with our neighbors and friends, who, no doubt, have to reciprocate, occasionally, for our shortcomings. By my correspondence with some of our freight agents I am reminded that the discussion of the subject of comb honey might be of some use to a number of our friends. Most shipping-cases received by us this season were almost perfection; i. e., they were neat, showed the honey to advantage, and the inside space was such that there was about ⅛ to ¼ inch space between the sections and the walls of the case. Put up in such manner the comb honey is apt to arrive safely if the railroad employees, while loading and unloading, would handle the cases as they would eggs. It is a notorious fact that comb honey is damaged while being loaded on the cars or while it is unloaded on its arrival. If those baggage-smashers would *set* down those cases instead of throwing or dropping them, much loss and annoying corrrespondence would be saved to shippers and dealers, and relations between consignees and railroad companies would be more pleasant. Unless there is a collision, or cases are upset or flung about, combs hardly ever break while in transit; and they do not break if hauled in a wagon over a rough pavement. Cincinnati has no rough pavement. I have this morning the assurance of Gen. A. H. McLeod, the General Freight Agent of the C. H. & D. R. R., that all of their employees will be instructed to handle comb honey the same as they would eggs. We are now corresponding with the agent of the Big Four, and will do the same with others as soon as occasion offers. It should be your point, and it should be one of the duties of the officers of our bee-keepers' meetings, to see that every railroad employee receive similar instructions from headquarters.

We received a shipment of comb honey this season, for the damages to which the railroad companies could not be censured. All the cases were smeary on arrival. Not showing much breakage, however, they were washed off and placed in the store. Each case had honey oozing out at the bottom-board, and on each additional day the pool of honey on the floor, under each row, was getting larger. The cases held twelve 4¼ sections, two sections in front row, behind the glass. They were too short and too narrow. The combs were pressed together so that the faces of most of them were bruised. They were not quite 8½ inches wide, so that the faces of the combs were bruised by pressing in the two sections. I am sorry for the poorly posted bee-keeper putting up his nice white-clover honey in such poor shape.

We are selling most of these nice combs without the sections, put up in butter-crocks and tin buckets. These cases were overhauled twice; but, who will buy a leaky case of comb honey? and leak they would. We have now placed all the good combs in new cases, and feel confident that they will sell in their present shape.

I feel sometimes disgusted on hearing so much of the dishonest honey-dealer and the city adulterators, although those parties are not at home in Cincinnati. I believe that the business is overdone in both directions. I don't remember the time when I have seen adulterated honey, and the public believes that most of the extracted honey is adulterated, because they see it so stated in the papers. It's not all "good sense" the friends of the bee-keeper bring to bear upon the public.

It is impossible for me to believe that the honey-dealer is on a lower level than the bee-keeper. I can believe it no more than that the business man in the city should be more dishonest than the farmer in the country. But there are scalawags in all classes of society and callings. Let us keep away from them, and post our friends how to put up their honey in safe and merchantable shape, and let us lose no time in impressing upon railroad companies the idea that our comb honey needs the same care as eggs. They will accommodate us if in their power. These are the first steps necessary for a pleasant relationship between bee-keeper and honey-dealer. The next step is to keep away from scalawags, no difference whether they live in cities or in the country.

Cincinnati, O., Dec. 16.

[I am sure our readers will peruse this article with interest, coming as it does from a leading honey-buyer as well as bee-keeper. Friend Muth will perhaps remember that I have more than once taken up the defense of the commission man, and condemned at the same time the slipshod methods of the honey-producer. For instance, I would call attention to page 183, March 1st of our volume for last, year. While it is no doubt true that bee-papers have of late put more emphasis on the dishonest practices of some "scalawag" commission houses (and there has surely been reason for it), I do not believe that any of them have felt that the producing class were as perfect as they might be.

Bee-keepers need to have brought to their attention over and over again the folly of putting first-class comb honey in ill fitting or miserably concocted shipping-cases, home-made, to save expense. The modern factory-made cases are almost perfect, and can be bought for less money than the usual home-made good-for-nothing worse-than-nothing substitutes.

Mr. Muth makes a good point in regard to having freight-handlers instructed by the managers of the railroad companies. I trust that commission men all over the country will take the matter up. Here indeed is something for the new Union to undertake.

Friend Muth expresses a doubt as to whether there is any such thing as adulteration of extracted honey. I do not know much about Cincinnati; but I do know, without any guesswork, that there is plenty of that kind of work going on in New York and Chicago, and I do know that our silence all along for several years has given honey-mixers altogether too much license.—Ed.]

THE AMALGAMATION PROJECT.

By Thomas G. Newman.

In reply to Dr. Mason's article in GLEANINGS, pp. 855–7, I desire to say that, being invited to "make suggestions" or criticise the Constitution offered as a basis of amalgamation, I candidly pointed out some of its imperfections, without allusion to any person, supposing that was what was being desired; but by the rejoinder of Dr. Mason, and the editorial remarks, it seems that an unpleasant personal controversy is invited. As I have no relish for such, and shall not indulge in it, I silently pass all that has been said. "Measures, not men," is my motto.

While I have no desire to dictate any thing, I certainly have the right to *criticise* such an important matter as submitting an imperfect constitution to vote. The members of the Union have the right to expect this of me, and I shall not disappoint them. In my criticism I have nothing to change, though I might add much more to it. The points I made are mainly incontrovertible. It is nonsense to state that I made any *decision* in the matter of submitting amalgamation to vote; that was the duty of the Advisory Board, to which I immediately submitted the question, Dr. Mason's assertion to the contrary notwithstanding.

It is a fact that I gave an "*opinion*" publicly, that such an incomplete and imperfect document should be amended before being adopted by the Union, because of the difficulty and delay in amending it afterward. Have I no right to express an opinion? If not, since when?

The unkind personal remarks threatening my defeat at the next election are ungenerous and unwarranted. I never was a candidate for election or re-election. The members voted for me because they wanted my services; and when they want some one else, I shall retire with the satisfaction of having done my duty to the best of my ability. I hope my successor will do the same.

There are seven members in the Advisory Board; three favor submitting amalgamation to vote: three vote against it, and one, after adding many more criticisms than I made, adds: "Many will want to have it put to vote. I should say, submit the criticisms to each voter, and put it to vote." That decides the matter. Amalgamation will be put to vote at the next election.

If the inconsistencies I have carefully pointed out are to be disregarded, and ascribed to my "vivid imagination"—then the consequences must not be charged to me. I have carefully watched the interests of the members of the National Bee-keepers' Union for a dozen years, and successfully defended their rights in the courts of the land—from the police court to the very highest tribunal of the country. My aim is the same to-day, by trying to prevent the serious mistake of too hasty and premature action, and thereby avoid the embarrassment which would naturally result therefrom.

[Neither Dr. Mason nor your humble servant had any desire to invite an unpleasant personal controversy. "Measures, not men," was also our motto; but when the man who had the measure in hand proposed to blockade it, then we protested. It may be true that Mr. Newman had no *desire* to dictate any thing; but when he said there was "nothing left for its advocates now to do but to await the action of the convention next year"—well, it *looked* like "a decision."

It is all right for him to give an opinion publicly; but what I criticised particularly was giving that "opinion" *too late* for action at the Lincoln convention. If he had not apparently desired to blockade amalgamation he could very easily have laid his "opinion" on the merits of the proposed constitution before the Lincoln convention; for, as I have already pointed out, practically the same document was published three weeks before that meeting.

I have been very sorry that it seemed necessary to criticise Mr. Newman's course in this whole matter, but I have believed it to be my duty.—Ed.]

MEMBERS OF THE LINCOLN CONVENTION ON THE STEPS OF ONE OF THE COLLEGE BUILDINGS. (SEE EDITORIALS.)

WOOD VS. WIRE.

WOOD STAYS NOT SATISFACTORY IN BROOD-COMBS.

By R. M. Reynolds.

When bee-keepers, a number of years ago, began to use full-sized sheets of foundation in brood-frames they learned that fastening such sheets to the top-bar only was not a real good plan. The foundation, during the manipulations of the bees in the process of building out into comb, was pretty certain to stretch and take on undesirable kinks, twists, and bulges—breaking down sometimes and making a bad muss. To prevent the foundation from stretching and sagging, various devices have been tried; but I believe that wire in the frames has proven, in time, the most efficient, practical, and satisfactory. I have found three perpendicular wires sufficient for a Langstroth frame, if the sheet of foundation is fastened securely to top and ends of the frame. The small tinned wires do not interfere at all with brood-rearing; and while three wires properly spaced will hold the foundation in line and secure nice straight combs, a greater number of wires will obviate the necessity of fastening the foundation to the ends of the frame, and will also enable the combs to stand rougher handling without damage.

The small tinned wires are preferable to larger wires, for the reason that they can be stretched tight without springing the thin bottom-bars of frames much out of line. Now, while wires are to be preferred for brood-frames, wood stays do very well for frames which are to be used exclusively for the extractor. The wood stays which I have used were sawed ⅛ square. Holes were drilled in top and bottom bars with a ⅛ bit, and the stays pushed up through the bottom-bars, and nailed in both top and bottom bars of frames. Three of these perpendicular wood-stays were used in frames the length of the Langstroth; and about 300 such frames which have been in use during the last 15 years have proven entirely satisfactory. When wood stays are put in and nailed, the thin bottom-bars are held perfectly straight and true; and after the comb is built down and attached to the bottom-bars there is little or no danger of the comb filled with honey bulging out of place if the frame should be turned over sidewise.

But wood stays, with me, have proven entirely and invariably *unsatisfactory* when used in brood-frames. The trouble seems to be that my bees entertain decided views on the matter. If a frame of foundation with wood stays were placed in the brood-chamber when honey was plentiful, the foundation would probably be built out into a nice even comb; but so soon as the bees were at leisure they were pretty certain to cut more or less of the comb away from the wood stays and then cut away more or less of the wood stays. Of probably 50 frames of that kind which I tried as an experiment, I think that not one comb remained in good condition in two years. Better not invest in a large number of wood stays for the brood-chamber until you consult your bees and learn their views on the matter.

East Springfield, O.

BEE-KEEPING IN SOUTH AFRICA.

60-CENT COMB HONEY DROPPING TO 36 CTS.; AN INTERESTING LETTER IN REGARD TO HIGH-PRICED HONEY IN AFRICA.

By Francois J. Haarhoff.

Some time ago I sent you a short article on bee-keeping in South Africa, in which I stated that we sell honey here at 60 cents per 1-lb. section. Although I spoke the truth at the time, I am sorry now that I did it, as I am afraid I have unwittingly given a wrong impression, as appears from some half-dozen letters which I have since received from your country inquiring for particulars and prospects of success for intending immigrant bee-farmers.

The case is this way: Last season the competition was between myself and one or two other small bee-keepers who did not own fifty colonies between us; consequently there was no fear of a glutted market. And, moreover, honey in sections was something new to most people, and was bought by many as a curiosity, or as something to be looked at for its beauty rather than tasted for its sweets. This season several new competitors have already appeared in the field; and, our market being limited to Pretoria and Johannesburg, the result is that the price of 1-lb. sections took a straight drop from 60 cents to 36; and I expect before the season is over to see it down to 24 cts. or under; and any oversupply would soon make the article a drug in the market. Then, again, for the information of intending immigrants I must state that the cost of production is abnormally high, as every article used in the industry is imported from America. I may state that every hive, section, or sheet of foundation, or any thing else I use in my small apiary, has been ordered for me by Messrs. T. W. Beckett & Co., from the A. I. Root Co.

Then, again, as to pasture. We have a long summer and short winter. But it must be borne in mind that nature supplies little or no pasture for bees, as our pastures are all pure grass—no clover, basswood, or honey-producing wild flowers, all our honey being mostly obtained from cultivated gardens, thus precluding the bee-farmer from keeping too many colonies. The only honey-producing wild flowers are a variety of milk-bush, which grows only on old and deserted land or gardens. These are being fast exterminated.

I have written this lengthy letter to correct any mistaken impression I may have created. Pretoria is not all roses. There are many thorns.

Pretoria, South African Republic.

ANCIENT LEGENDS REGARDING BEES.

ABILITY OF BEES TO DISTINGUISH BETWEEN GENUINE AND ARTIFICIAL FLOWERS; AN INTERESTING ARTICLE.

By T. S. Ford.

In the Sunday-school quarterly sent out by the M. E. Church South, and in Peloubet's notes on the International Sunday-school Lessons for 1896, an example is quoted to illustrate the wisdom of Solomon, as follows: "When the queen of Sheba placed two wreaths before the monarch, and asked him to tell which was real and which was artificial, he opened a window; and a bee alighting upon the natural wreath told him what he wished to know." Peloubet quotes this story from Geikie and Farrar, and Stanley's History of the Jewish Church. It is supposed that these authors got the story from some rabbinical compilation, and it really shows how easy it is to get away from the open book of nature. A Greek historian would never have invented such a story; and if he had found it he would have rejected it at once. The truth is, if Solomon was the close observer that he must have been he would never have permitted an appeal from the verdict of his own senses to those of an insect.

The writer was sitting one day last summer by an open window. A hand-painted fire-screen of enameled cloth hid the fireplace, and upon it was painted in water-colors, upon a dark background, some water-lilies rather clumsily executed, and some passion-flowers (May-pops) which were quite life-like. The whole vine was shown with flowers and fruit hanging. An enormous bumble-bee came buzzing in at the window, and made straight for the painted flower, and clung to it, extending his tongue in a frantic endeavor to get at the supposed nectar. He persisted in his efforts for at least twenty seconds—long enough to call the attention of other members of the family to the scene. Finally he gave it up, and flew straight out of the window, apparently without ever realizing how he had been cheated.

In a contest between two ancient Greek painters, as related in Rollin's Ancient History, grapes were painted so naturally that the birds came and pecked at them; and another great artist painted a mare so artfully as to cause a horse, when led up to it, to whinner. Now, the senses of a bird or animal, reinforced as they are with a higher degree of intelligence, were thus cheated.

In the crest of the king-bird or bee-martin are hidden, under a dark exterior, a cluster of scarlet feathers which show beautifully when the crest is erected. The current belief among our common people is that this semblance of a scarlet flower on the top of a bee-bird's head attracts the unwary bee to the jaws of the hungry bird; and I have myself seen bees swerve from their line of flight and circle round the sitting bird until snapped up.

It is said that Solomon "spake of trees, from the cedar-tree that is in Lebanon, even unto the hyssop that springeth out of the wall; he spake also of beasts and of fowl, and of creeping things" (insects) "and of fishes." In other words, this great man, who probably had no access to works on entomology and natural history, as do we, was a close observer of all the phenomena of animal and insect life, as he saw them. To say that such a man, gifted above all men who lived before or since in all the faculties of observation as well as reasoning, and therefore a closer observer than Darwin himself, should have been so silly as not to know that any gay color, having the semblance of a flower, will attract a bee, is a striking illustration of why it was that He of whom he himself said, "A greater than Solomon is here," treated with contempt "the tradition of the elders." This story of Solomon's artifice of using the bee to aid him in detecting the artificial from the natural flowers is evidently one of the monkish inventions of the ancient Jewish rabbis, living as far from the real truths of nature as they did from the truth of the Spirit, and who erected a hideous system of ethics, false to the real teachings of the Angel of the Covenant.

The rabbi who, in ancient times, coined the false story of Solomon and the honey-bee, thereby imputing to the insect more acute power of observation than the wisest of men, found his counterpart in a Methodist bishop whom the writer heard in the pulpit on a great occasion, enlarging upon the wonderful faculties which the Creator had bestowed upon the honey-bee. He said the senses of the insect were so acute, and that they were always so sensitive to the approach of rain, that the last individual of the busy hive was always safely housed before the storm began. The idea clothed in his beautiful language (which I can not undertake to quote) was very impressive; but, as every bee-keeper knows, he was far from the truth. Last summer a thunderstorm came up in the middle of the day. There was a furious wind accompanying the first dash of rain; and while probably the great majority of the busy workers reached the hive before the bursting of the tempest, thousands were seen so buffeted by the wind and rain that they took refuge in the shrubbery, many yards from the hives. The writer thinks that the Jewish legends of the several incidents attending the visit of the Sabæan queen are squarely on a level with the Arabian stories of his dealings with the genii, and that neither is worthy of quotation in the Christian's study of the Scriptures.

Columbia, Miss., Nov. 29.

[When I saw that item in Peloubet's Notes regarding the manner in which Solomon is said to have distinguished between the real and artificial wreath, I said to myself, "The story is very pretty but improbable." A number of the other things that the queen of Sheba is said to have placed before king Solomon, while ingenious are equally improbable. I am surprised that Dr. Peloubet places so many such things in his "Notes," that are studied and admired by Sunday-school workers everywhere. It is this same Dr. Peloubet who, by way of illustration, spoke of the skill of man in manufacturing honey-comb, filling it with glucose, and capping it over with appropriate machinery. The illustration itself, I remember, was very appropriate, but the thing itself very wide of the truth.

I never supposed myself that it was possible to fool even a bumble-bee with artificial flowers, much less those that are painted.

I have seen bees follow bee-martins and king-birds in their flight through the apiary; and I have seen them circle around the birds after they had alighted; but I always supposed this was owing solely to the fact that they were enraged by seeing a swiftly moving object among them. You know it is a great deal safer to walk through an apiary quietly than to run through. One of the first things I ever learned in bee-keeping, in my early boyhood days, was that, if I ran through the apiary to escape the bees, I was more apt to be stung than if I walked through quietly.—ED.]

EXPERIMENTS IN FEEDING BEES.

HOW TO FEED IN THE BOTTOM-BOARDS.

By F. A. Snell.

During my 36 years of bee-keeping in this State I have tried many different ways of doing it. I first kept my bees in box hives, and those short of stores were put in the cellar during winter. The hives were inverted, and the bees were fed by placing combs of honey over the tops of the brood-combs, with food enough to carry them through till spring, as advised in Quinby's Mysteries of Bee-keeping.

Later I transferred all my bees into movable-comb hives. A few being short of stores the first year, I placed them in the cellar, and two or three were fed on sorghum molasses as advised by some writer. These all died before spring, as well they might have done. The rest were fed on granulated-sugar candy to supplement their stores. These came out in the spring in very good shape. Good seasons followed, and I quit trying rapid increase, and my bees were well supplied with food for winter. I was quick to adopt the honey-extractor when it came before bee-keepers, and ran a part of my bees for extracted honey. Then the honey was taken from the brood-chamber. During the early bloom I kept the combs emptied of honey by its removal once a week.

After the early bloom a drouth set in, and the fall bloom was almost a failure, and, as a result, my bees were short of stores for winter, and I was forced to feed, and tried various ways of doing it. I tried shallow dishes filled with honey. Sticks were laid across to keep the bees from drowning; deeper vessels were tried, also cans filled with honey inverted over plates, and slightly raised, and held in place by small sticks which held the can in place, allowing the feed to flow over the plates from which it was taken by the bees, and stored in their combs. These feeders were all placed over the brood frames, and the heat from the bees retained so far as possible by covering the feeders with pieces of carpets. Later on I experimented with other methods of feeding—not from necessity, but to gain knowledge.

At a meeting of the old Northwestern Bee-keepers' Association held at Decatur, this State, in October, 1869, I learned from that veteran bee-keeper, James M. Marvin, his method of feeding. To feed he simply raised the fronts of the hives two or three inches higher than was the rear, and poured the feed in at the entrance, giving about two or three quarts of feed at a time, and doing so just at night, so no robbing would occur; and by morning the feed would be all stored in the brood-combs. This was new to me, and was tried by me at the first opportunity. I found it worked well. The honey or syrup was fed warm, and should be made a little thinner than honey. Fed thus, no bees were drowned. The object was to give the bees a good supply of food for winter, and to do so in as short a time as possible; hence the feeding was done each evening until all had enough to carry them through to spring. This way of feeding for winter is very little trouble. No extra fixings had to be made, and later to take up valuable room. From time to time since, this method has been mentioned in our bee-journals. It is old, but none the less valuable; and where bees have been drowned by so feeding, I believe it was from the feed being given cold and too thick. It should by all means be quite warm, and thinner than ripened honey when given. Very likely those veterans, M. M. Baldridge and R. R. Murphy, fed their bees in this way away back in the sixties. I wish we might hear from them oftener through our bee-journals.

When entrance feeding is practiced, care should be taken that, in case of rain, no water can enter the hive. The hives must be sealed fast to the bottoms, so no food can leak out and be lost, and induce robbing, perhaps. Late years I have had no occasion to feed for winter, but have experimented during spring with a view to increase brood-rearing or to learn whether such feeding was advisable. I have tried entrance feeders; and for inside, Hill's, Root's, sack, pepper-box, etc., and one of my own get-up. I now prefer the J. A. Golden. I am now confident that early spring feeding to try to encourage brood rearing is no benefit, but detrimental. If such is of value at any time, I think it is between fruit and white-clover bloom; but I do not know. So far as my experience goes, after all this time I believe that, if the brood chamber is kept well supplied with honey in the brood-combs, other supplies given as by feeders are of no use. I shall continue to experiment along this line on a small scale in the future, as I have done in the past, and hope to gain more light by so doing.

Milledgeville, Ill.

BISULPHIDE OF CARBON.

HAS ITS VALUE AS A MOTH-KILLER BEEN OVERESTIMATED? ITS BAD EFFECTS ON COMB HONEY; AN IMPORTANT AND VALUABLE ARTICLE.

By C. Davenport.

In reading the report of the last convention proceedings of the North American Bee-keepers' Association I notice that bisulphide of carbon is mentioned as a means of killing moths in comb honey. I should like to say a few words about this; for I believe that, if it ever comes into general use for this purpose, it will do more to injure bee-keepers than adulteration ever has or ever will, for adulteration affects extracted honey only. While I believe comb honey represents the largest interests, I do not wish it to be understood that I am not aware of the great harm adulteration has done and is doing to the producers of honey. I most heartily approve of what the members of the association at the last meeting said against and are trying to do to remedy the evil.

As a means of killing moths in comb honey I have experimented with a good many kinds of drugs. While there are a number of kinds that will kill the moths under the right conditions, all that I have tried as yet, which were effective, injured the flavor of the honey, and bisulphide of carbon did so the worst of all. It also has the peculiar property of making it thinner —not only what is in unsealed cells next to the edge, but that which is sealed as well.

Sections of honey that are so well cured that the honey in unsealed cells can not be shaken out by hand will, soon after treatment with bisulphide of carbon, run or drip quite readily from unsealed cells if the sections are turned over on their sides; and the honey in some that I kept a number of months after treatment did not get thick again. But it should be understood that the treatment was very thorough, as it has to be in order to kill the moths. I hardly think any room could be made tight enough for this purpose unless it is one well plastered, and strips of paper pasted over all the cracks around doors and windows; and the floor would have to be especially good, for the gas or fumes from this stuff try to go down instead of up. I tried it first in a room which I thought was nearly air-tight; but after eight hours, moths in some old pieces of comb which had been placed in the room were as lively as ever. In this case the drug was placed in a large open dish about seven inches in diameter, and it was not all evaporated when the room was opened. I then took a good sound bee-hive, nailed on a tight bottom, and poured melted beeswax around all cracks; in fact, I coated it all over inside with wax, as I did the cover, which was one that fitted very tight. Along the top edges of the hive, on which the cover would rest, strips of rubber were nailed so that, when the cover was on and heavily weighted down, this box was, I believe, perfectly air-tight; and I found that in this box it took about 3½ or 4 hours to kill moths that were well protected by the comb and their web. Those I took from the comb and placed in an open glass would die in about 1½ to 2 hours.

In order to kill moths in comb honey it would, of course, have to be left as long as it took to kill those protected by their web and the comb. Moths are much harder to kill in this manner than some things that are larger. A mouse in a trap was put in this box, and at the end of 20 minutes the cover was removed and the mouse was dead. It took but a few minutes to kill a toad and a gopher.

In killing moths with the fumes of sulphur it is much easier to kill the small ones. With bisulphide of carbon the big ones seem to die fully as soon as the small ones.

Moths are very bad here during warm weather. Some one said that, with Italian bees, if the honey were taken directly from the hives and put in a room tight enough so that a moth-miller could not enter, the honey would not be troubled by moths. But I am sorry to say that, in this locality, honey directly from the hives of Italian bees put in such a room, if the room is above ground, and kept as warm as it should be, would often be nearly destroyed by moths if it were not sulphured every twelve days or so for a while during warm weather.

I should like some better method of killing moths than sulphur, but I do not believe it is to be found in bisulphide of carbon; for, to say nothing about its injuring the honey, it is fully as much (if not more) work to use it. It costs more, and, besides, it is a poisonous and dangerous drug to handle.

Southern Minnesota, Dec. 1.

[I am glad that Mr. Davenport has sounded a note of warning in time, for of late bee-keepers have been looking toward bisulphide of carbon as the best solution of the moth evil in comb honey; but if the remedy is as bad as or worse than the disease itself, then it is high time we called at least a temporary halt. It is no doubt true that other bee-keepers who have tested bisulphide of carbon are in a position to prove or disprove Mr. Davenport's statements; but we have learned by experience that he is one of those careful, thoughtful, painstaking bee-keepers whose opinions should be regarded as having considerable weight.

Prior to the use of bisulphide of carbon, sulphur or brimstone had been used, and no bad results, I believe, have ever followed, except in cases where too great a smudge was made—much more than was necessary. It is then that a yellow deposit will be found on the sections and the surface of the honey. This is no real detriment to the flavor of the honey, but it does affect quite materially its appearance for the market, and that is a real damage.—ED.]

THAT RAPID BEE-ESCAPE.

By C. H. Dibbern.

I think a little explanation is necessary in regard to the escape described in GLEANINGS of Nov. 15. Up to the time I wrote the article I had experimented with various designs, on the lines indicated, with some very gratifying results; but as the past few seasons have been practical failures I had little chance to put it to actual test. When I read about the multiple-exit escape my thoughts reverted to my experiments with this pattern, and I again made some trials, the results of which seemed to warrant the article I sent you. Since then, however, I have taken off a good many full cases of comb honey, and the design as published has proven a disappointment.

The Porters are entirely right in claiming that bees must first have a strong desire to leave the supers before they will do so. It seems that, in the board described, there was too much connection with the hive; and while, sometimes, it works very well, at other times it has failed entirely. Then, too, I found that, with only two exits, it worked all right, and I am not sure but one exit would be better yet. Then, too, I found that four or five lines of obstructions across the board are better, and it can be greatly simplified. I now use a piece of perforated tin ¾ in. wide, and as long as the board is wide. Get your tinner to turn up ⅜ square, and with a common jack-knife cut the tin so you can bend little openings for the bees to pass through outward. Nail four or five of these strips across the board, with the openings fronting to the exits. Nothing more is necessary.

For extracting purposes I believe this plan of getting rid of the bees rapidly offers great possibilities. If a tin slide is arranged to cut the bees off from the hive entirely for fifteen or twenty minutes it will greatly hasten the bees in leaving. This slide can be put over the lower holes, and there will be no danger of smothering the bees, as they can get plenty of air through the perforated strip at lower end of board. It is not intended to nail upper and lower boards together, but can be used for hive or case-covers by covering the holes till wanted as bee-escapes.

The Porter escape is a very ingenious little invention, and I think the main reason of its success is the fact that it leaves but a very small connection between hive and super. I have produced several escapes that work just as certainly and quickly as the spring escape; but it has been my ambition to produce an escape that will work more rapidly, and with less danger to the bees, and I believe I am in a fair way to accomplish it. If some one else (as the Porters did my original plan) takes up my ideas, and by more ingenuity succeeds, well and good. Bee-keepers will be the gainers as they now are in the Porter escape. Another year I shall experiment further, and make competitive tests, and perhaps in due time have something further to say in GLEANINGS.

Milan, Ill.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

YELLOW-JACKETS, MICE, ETC.

A correspondent from the South propounds a few questions relative to the apiary, which I will answer under the headings below.

YELLOW-JACKETS.

He says he has recently discovered yellow-jackets in some of his hives, evidently stealing honey. He thinks the bees have killed some of the jackets, but is not sure the jackets do not kill some of the bees, and asks if there is any remedy.

If the correspondent has really seen yellow-jackets on the combs, among the bees, eating honey, when the bees were in a normal condition, he has seen something I never saw. Yellow-jackets are very fond of honey; and when it is exposed, by opening hives, etc., they will dive on to the combs and eat it ravenously; but so far as I have been able to discover, when the hives are not molested by the bee-keeper, the bees do not allow them to go on the combs of honey. They annoy the bees to a certain extent; but bees, here at the North, seem to be equal to repelling all attacks from them, so that the apiarist pays little or no attention to them. If they really do enter the hives, as the language of the correspondent would denote, or kill many bees, so that a remedy should be sought, I would suggest destroying their nests or killing them with poisoned honey. If the latter is used it should be kept in a dish covered with wire cloth, the mesh of which will admit the jackets but exclude the bees, else the bees would get poisoned as well as the jackets.

MICE.

He next asks: "Do mice ever trouble bees? If so, what is the best way to get rid of them?"

Here at the North mice are often troublesome to the apiarist in winter, inasmuch as they disturb the bees by their constant motion, and gnaw holes in the combs, where left unprotected by the bees, the cluster of which is contracted to the smallest proportions to withstand our cold weather. Mice never trouble when the bees are in the active state, for the bees sting them to death very quickly, and for this reason I should not think they would trouble in the far South, for bees can fly there the most of the time, I suppose. Our remedy here is to trap them in our bee-cellars and fix entrances of metal to the hives which are wintered outdoors, so small that the mice can not get in, while the bees readily pass through. Tin and sheet iron are the materials generally used for this purpose.

SIZE OF SECTIONS.

Again, he wants to know what size of honey-frame is best where it is desirable to sell comb honey. By which is meant, I suppose, what are termed "section boxes." If he means what size of frame is best to use while working for comb honey, then I would answer, the Langstroth, for the South. But the question (though not quite plain) evidently means sections, by the term "honey-frame," so I will answer on that supposition.

There are, in quite general use, sections varying in size from half a pound to two pounds, when filled with honey. Each size has its advocates, but probably there are two to one of what are termed the 4¼ x 4¼ sections (which hold about a pound of honey), when taking all sizes of sections into consideration. This section was mainly 2 in. wide when first brought before the public, but lately many use them of less width, or thickness. This section was made of this size because 8 of them would just fill the Langstroth frame. My own preference is a section 3½ x 5⅜ x 1⅝ in., this holding a pound as nearly as may be when well filled. This size is used in single-tier wide frames with separators, so as to secure each comb built perfectly in the box. My reasons for preferring them are, that more in number can be set over a given space than can those of less depth; besides, such a cake of honey is of symmetrical proportions, and pleasing to the eye, it being just sufficient to set on the table for an ordinary family, and, covering more surface, apparently, to look at, does not give a scrimped appearance or pattern. Why I prefer them to the larger size is that they bring from two to three cents per pound more in market. If it is desired not to use separators, a thinner section can be used. The advocates of no separators use seven or eight sections to the foot, of the 4¼ x 4¼. However, the non-separator plan, as a rule, does not give as nice and uniform combs as does the other. For this reason many grocers object to "non-separated" honey, as the combs get more or less injured in transit, so that daubing and leaking on counters, etc., is the result.

LOSS OF QUEEN.

Lastly he asks: "In case the colony should lose the queen, what would be the result? I find some empty cells in some of my hives, and thought perhaps the queen had died."

If a queen is lost, or dies, when there are eggs or larvæ in the hive, the bees have the means at hand for the rearing of another; for by feeding any worker larva, under four days old, royal jelly, and enlarging the cell, it is changed from a worker into a queen. A colony in this condition is not called "queenless," but yet it is without a "laying queen." By the time this young queen hatches, all of the eggs and larvæ have passed into the pupa state, when it is impossible for the bees to rear another, should this young queen become lost before she gets to laying, in which case the colony would be hopelessly queenless, and must perish with the death of the bees by old age, unless assisted by the apiarist in giving them a queen or larva from which to rear another. The finding of empty cells does not indicate queenlessness, for there are more or less empty cells in the hive at all times, and during fall and winter little or no brood is found. If during the busy season of the year, no brood of any kind is found, the colony may, as a rule, be considered queenless.

[The following, from Mr. F. A. Salisbury, another bee-keeper living in the same county with Mr. Doolittle, after having tried the tall section favors the square one. Here is what he says:—Ed.]

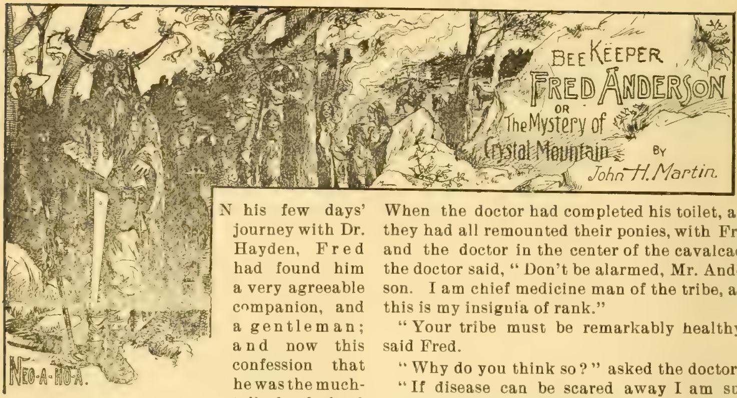
A SERIOUS OBJECTION TO TALL SECTIONS.

Mr. Root:—In your editorial in Dec. 15 GLEANINGS, in regard to oblong sections, I want to say that I have used them for three or four years, and am getting back to the square, on account of foundation, when being drawn out by the bees, is, in too many instances, fastened to the separators. The sections are $3\frac{13}{16}$x5¼x1½. Now you will see that, on account of the height and narrowness of the section, the foundation, if bees work on one side a little more than on the other, will be swung over so as to strike the separator a great deal sooner than if the section were only 4¼ high. On this account I am changing over to the regular 4¼ section. I think that honey in oblong sections looks a little better than in square sections; but there is too much of fastening of foundation to suit me.

The article you publish, taken from the *Progressive Bee-keeper*, hits the nail. F. A. Salisbury.

Syracuse, N. Y., Dec. 19, 1896.

[Mr. Salisbury's difficulty, if the same should be experienced by other bee-keepers, will be a somewhat serious one. But it seems to me the tendency of the starter to lean over to one side can be overcome by side fastenings; but Capt. Hetherington, and a large number of other York State bee-keepers, are using tall sections quite extensively. Mr. Danzenbaker never spoke of any trouble in the line hinted at by Mr. Salisbury, and he fastens starters at the top only. And those who are using the old square sections, and have thought there *might* be an advantage in change, are very anxious to know whether others have had the same trouble. How many shall we hear from now, both for and against tall sections? Let us have the truth, cut where it may. This is an important matter and I hope we shall hear from many.—Ed.]



BEE KEEPER FRED ANDERSON OR The Mystery of Crystal Mountain

BY *John H. Martin.*

In his few days' journey with Dr. Hayden, Fred had found him a very agreeable companion, and a gentleman; and now this confession that he was the much-talked-of bad man of Crystal Mountain gave him such a shock that he reeled a little in his saddle.

The doctor, seeing his agitation, said, "I trust, Mr. Anderson, that in the few days of our acquaintance I have impressed you with the fact that I possess, at the least, a passable character, and I trust that you can discriminate between character and reputation. Reputation is what other people say of us. If they have received false impressions of me, and even enlarged upon them, and have sent them broadcast through the papers, it affects only my reputation, while my character, to those who know me, is brighter from the contrast. Now, as I told you at the commencement of our journey, if you have any doubts, or if you think I will not live up to my agreements, you can return to Sacramento at my expense. Give the matter careful thought, and give me your final answer when we reach yonder clump of live-oak trees, an hour's journey ahead; for when beyond that point you will not be allowed to return until the expiration of our agreement."

Fred answered not a word; but for the next hour his thoughts were busy. Doubts, one after the other, were thrown aside; and as he cast them away his spirits became more buoyant; and when the party passed under the live-oaks he reined in his horse and clasped hands with his employer, and said, "Dr. Hayden, I will trust you."

"You decide wisely," said the doctor.

Under the oaks they were met by a score of mounted Indians from the rancheria. They all dismounted, and formed in a circle with the doctor in the center. A peculiar leathern box was passed several times around the circle, and at length passed to the doctor. The latter opened the box and removed therefrom, and proceeded to bedeck himself with, the most grotesque outfit Fred had ever laid eyes upon. When the doctor had completed his toilet, an they had all remounted their ponies, with Fred and the doctor in the center of the cavalcade, the doctor said, "Don't be alarmed, Mr. Anderson. I am chief medicine man of the tribe, and this is my insignia of rank."

"Your tribe must be remarkably healthy," said Fred.

"Why do you think so?" asked the doctor.

"If disease can be scared away I am sure your habiliments will do it. My heart even throbs now at the sight of you."

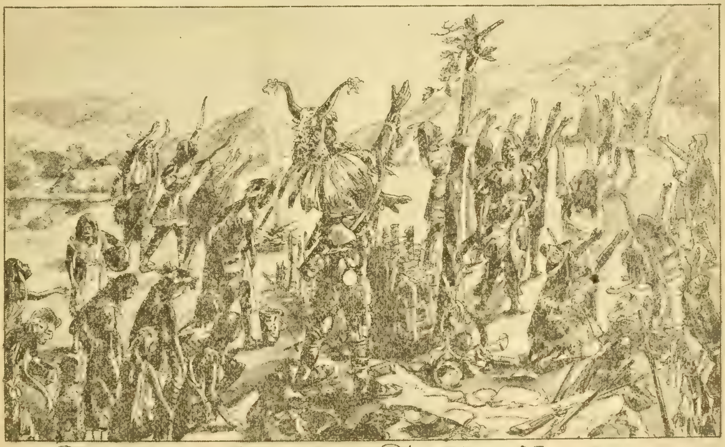
"Yes, yes; I understand," said the doctor. "Your disease, then, must be of the heart. Well, we will see if the things about Crystal Mountain will not prove a cure-all for you."

Upon arrival at the rancheria the whole cavalcade entered a sort of plaza that was well surrounded by circular houses; old men, squaws, papooses, and dogs seemed to spring out of the ground on every side. The horsemen circled around the plaza several times, keeping up a monotonous chant. The doctor, now Neo-a-ho-a, or medicine man, kept time by rattling a gourd, and at regular intervals giving it a tremendous whirr over the teeth of a saw-fish, which was a part of his regalia. His head-dress of long steer horns had obsidian rattles at the tips that glistened in the sun, and also kept up a rhythmic tinkle with every movement. At the conclusion of the chant, the bundles from the pack-ponies were deposited with the doctor, and, with the aid of the chief, the various articles, useful and ornamental, that had been purchased in Sacramento, were distributed to the various parties for whom they were purchased.

At the completion of the distribution our medicine man, with Fred and two of his immediate helpers, retired to his own tent-like structure. Here he discarded his outlandish dress, and said to Fred, "You see that we live in a rather primitive way here. This portion of the rancheria that I occupy is like all of the rest, except in size; the ground is our floor; our fire is made in the center, and the smoke escapes through the hole in the roof. The Indians roll up in their blankets and sleep in the surrounding space; but I have cots, as you see, and you can occupy the one in yonder nook."

"But, doctor, I can not imagine how you, the only white man here, could obtain the confidence of these Indians and become their medicine man."

"That was a very simple matter," replied the doctor, "and it all happened through a swarm of bees. For several years my travels have led me among the different tribes of Indians all up and down this coast; and in many of them I find the snake recognized as a symbol for either good or evil in their religious rites. When I came here a few years ago I was surprised to find this tribe having traditions much like the Moquis of Arizona, and, like the Moquis, they had a snake-dance. I had learned the Moqui language, and found it easy to converse with these people, whose language was similar; and, being a physician, I affiliated as far as possible with the medicine men. With this tribe, instead of courting the favors of a venomous reptile, as did the Moquis, they performed their rites with the harmless gopher snake, and for this purpose kept half a dozen in as many different stone cages in the cliff near the rancheria; and at planting-time their rites required them to be all huddled into one cage or small cave. A few days after my arrival, while the medicine man Neo-a-ho-a was performing some rite over the snakes, with sweet-smelling herbs, an immense swarm of bees settled upon the entrance to the little cave where the snakes were kept. As a result, the new comers took possession, and, being no respecters of persons or snakes, even if the latter were pampered as divinities, there were in short order six dead snakes. Neo a-ho-a made a valiant defense; but as bees were unknown in this portion of the State up to that time, he was fighting an unknown enemy at a great disadvantage. The whole rancheria was aroused; but every one who ran to the aid of Neo-a-ho-a ran back howling with half a dozen bees on his or her face or hair. For a short time it looked as though there would be a complete stampede of all of the occupants of the rancheria.



The burial of Neoahoa. The New Neoahoa.

"I had been a manager of bees in the East, and, taking in the situation as soon as I heard the commotion, I made a smudge, and, taking a large blanket, I brought the medicine man to a place of safety in the center of one of the large huts. I saw at a glance that the poor fellow could not live. My remedies were few, simple, and ineffective. I called the chief and old men into the hut, and informed them of the fact; and while I was bent low chafing the poor fellow's body, in the throes of his last gasp for life, he threw his regalia over me, exclaiming, 'Neo-a-ho-a,' which meant that I would be his successor; and while I was all the time fearing that these simple people would lay all of the untoward circumstances to the presence of a white man, strange to say I was accepted by the head men of the tribe without a murmur of dissent. 'There is a providence that shapes our ends, rough hew them as we may,' I exclaimed, as I arose with my new insignia of office upon my shoulder. After many years' wandering after a beloved object that had eluded my search it seemed to come to me like a flood of light from above that, if I would take the place of the Neo-a-ho-a and wait here, the object would come to me, and for many years I have waited. Of this world's goods I had plenty, and now as medicine man I would try to lead the whole tribe up to such a moral height as their natures and surroundings would permit. The moment was ripe for a change. I had but to put in my sickle, and reap.

"After much ceremony in removing the sacred snakes from the little bee-cave, and burying them with Neo-a-ho-a, I found that, in substituting a swarm of bees as an object of worship, I had an excellent foundation from which to lead up to Christianity. Here in this little insect-community I found industry, cleanliness, love, fidelity, order, providence, alertness, patriotism. The fathers of the tribe were slow to give up their old traditions; and to please them I still wear the regalia; but to the younger members of the tribe I have thoroughly inculcated Christianity. How I have succeeded you have in part seen at Sacramento, where their conduct was far better than that of many of their white brothers; and as the weeks roll by you will learn much more."

"And *you* are the bad man of Crystal Mountain!" said Fred.

"I am the bad man of Crystal Mountain," replied the doctor, with a sad smile.

"In the matter of good morals and good works, doctor, you remind me of my good friend Prof. Buell."

"Certainly he is a kindred spirit; for whenever you mention his name my heart warms toward him. I believe you said he had an invalid daughter. What was the nature of her disease?"

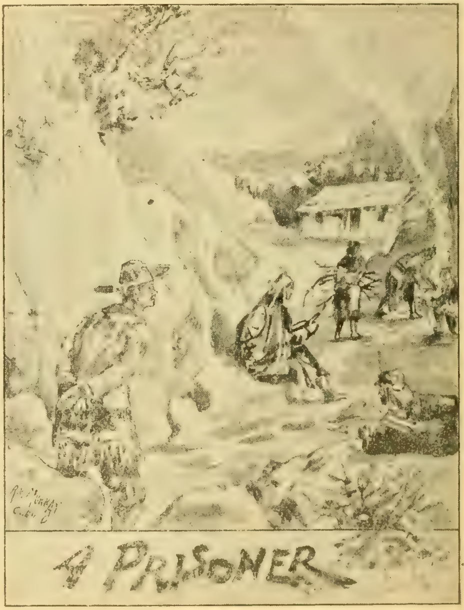
Fred hesitated a moment for a reply, and, with an evident effort, he said, "Doctor, she is insane."

"Sure, sure, that is grievously unfortunate; and, Fred, what is the young lady's given name?"

"Her name is one among thousands; it is Alfaretta."

"Alfaretta! did you say Alfaretta?" shouted the doctor, springing from a recumbent position in his easy-chair. "Alfaretta, did you say?" grasping Fred by the shoulder.

"I certainly said so," replied Fred, with evident alarm; "her name is Alfaretta Buell."



A PRISONER.

"Strange—strange!" said the doctor; "and that name *Buell* comes up every time. If it were Bull, plain Bull, I believe the mystery would be solved."

Then the doctor walked back and forth across the room with head bowed. At length he stopped suddenly, and said:

"Fred Anderson, did you ever hear the name of Adrietta mentioned by the Buells?"

"I never did," replied Fred.

"Let me tell you, Fred Anderson" —

Here the doctor was interrupted by the rattling of gourds without, and, hastily donning his regalia, he said, "Surely I had forgotten our evening council. As this council pertains to your advancement, Mr. Anderson, you will have to remain here. My helpers will bring you your supper, then you can rest; and do not be surprised if I tell you that we start for the bee-ranch at midnight."

"After the last few days' experience I will try to allow nothing to surprise me," replied Fred.

"Good! good!" said the doctor, with unusual warmth as he grasped Fred's hand, and then immediately left the tent.

Fred, not being fully recovered from his recent illness, sought his couch early; but for a long time he lay awake speculating upon the episodes of the afternoon, and especially upon the effect the name *Alfaretta* had upon the doctor. Sleep at last came to the tired body; but in the mind it was dreams, dreams, one after another.

It must have been near midnight when he was sporting with Alfaretta and the mermaids, and then with Matt Hogan, as on the night of the tempest, gliding swiftly down the river. The motion seemed so real that he awoke with a start, and then a struggle. He was securely bound to his cot, and was being borne rapidly along by several dusky persons. In the darkness he could not distinguish that any of them were his former traveling companions, and in utter desperation he shouted, "Dr. Hayden! help! help!" The night air fell cool upon his face, but not a reply came to his appeal save the dogged trot of the Indians. Fred was now fully aroused; but finding that neither struggles nor shouts made any impression upon his captors he submitted through sheer exhaustion. When one set of carriers tired, another set relieved them, and the trot, trot, continued. It seemed an age to Fred before his cot was halted and set down. His bands were here loosened, and he was motioned to arise. He noted that the Indians around him were not the same that he had seen in the rancheria, and the stopping-place was where many huge boulders reared their ungainly forms; and near one of them was what appeared to be a long low adobe cabin; near it a few Indians were kindling a fire. Fred had no more than taken in this situation than he was closely held by two of the Indians, his arms pinioned, and a tight bandage placed over his eyes.

By
ER
Root
Editorial

I WOULD call special attention to the article by Mr. Davenport, in this issue, regarding the danger arising from the use of bisulphide of carbon in destroying moths in comb honey.

IN this issue, under "Ridgepole Musings," R. C. Aiken gives some interesting and valuable facts about alfalfa. Much of what he says regarding this famous honey-plant will be new to many.

THE EDITOR OF THE BRITISH BEE JOURNAL IN CALIFORNIA.

THE editor of the *British Bee Journal*, Thos. Wm. Cowan, whose name I have often mentioned in these columns, has been making a hurried tour across our great and beautiful country. I knew that he was expecting to make the trip, but was surprised to receive a letter from him so soon, not from "Merrie England," but from our beautiful State of California. Here is the letter, which I have taken the liberty to give our readers:

Dear Mr. Root:—I am pleased to say that Mrs. Cowan and I arrived here after a very pleasant journey via the Sunset Limited, and were much interested in all we saw by the way. I am very glad we came by that route, for we found it very cold in New York, and I am afraid we should have found the northern route rather unpleasant at this time of the year. I shall hope in the spring or early summer to travel by that route and stop off to see some of my bee-keeping and other friends. I see GLEANINGS of Dec. 1, and observe that you have made a very good copy of the illustrations of my pamphlet on "Foul Brood." I also notice that Mr. A. I. Root has gone to Arizona, and I shall look forward with interest to his account of what he sees I should have liked to stop some days there to study the cacti, and to have collected specimens, but I hope to do so some other time. THOS. WM. COWAN.

Loomis, Cal., Dec. 21.

Mr. Cowan is without doubt, the most distinguished bee-keeper from abroad who has ever visited our country. Indeed, for scholarly and scientific attainments I doubt if he has an equal among those who love and study bees. Bee-keepers all over this broad land will be glad to extend him a warm welcome.

THE LINCOLN CONVENTION GROUP.

I HAD hoped to get the group picture of the Lincoln convention, shown on page 11 of this issue, long before this; but I have been waiting to get the names, in answer to request, corresponding to the numbers; but so far they have failed to come to hand. I can give a few of them from memory; but as I find Mr. York, in the *Am. Bee Journal*, gives a larger list than I can recall, I copy his list entire.

1. Mrs. J. N. Heater.
2. Miss Jennie Razer.
3. Mrs. V. Collins.
4. Chancellor MacLean.
5. A. I. Root.
6. Mrs. A. L. Hallenbeck.
8. E. B. Gladish.
9. Ernest R. Root.
10. George W. York.
12. Dr. A. B. Mason.
13. Rev. E. T. Abbott.
14. Mrs. Eugene Secor.
15. Hon. Eugene Secor.
16. J. C. Knoll.
17. A. Laing.
18. Dr. C. C. Miller.
20. Mrs. Compton.
21. Mrs. A. L. Amos.
22. Mrs. R. C. Aikin.
23. R. C. Aikin.
24. T. R. Delong.
28. Prof. L. Bruner.
29. L. D. Stilson.
30. H. E. Heath.
31. Mrs. E. T. Abbott.
32. S. H. Herrick.
34. J. C. Stewart.
37. J. C. Masters.
38. E. Kretchmer.
40. W. C. Frazier.
41. Rev. Clay C. Cox.
43. Mrs. E. Whitcomb.
53. Charles White.
54. M. A. Enslow.
57. L. M. Brown.

At the close of one of the sessions we assembled on the steps of one of the college buildings (the Library Hall, I believe), and one of the members of the Lincoln meeting, a Mr. Lovell, professional photographer of Omaha, Neb., as as well as a bee-keeper, made the "shot."

Many of the faces bring back to me pleasant memories, and I should like to give some of the little incidents, chats, and handshakes called forth by many of the faces, some whose names I can't even now recall; but space, and the fear of ignoring some just as deserving, forbid. One pleasant *good* face brings back a feeling of sadness, and that is the likeness of Mrs. A. L. Hallenbeck, whose untimely death I have already spoken of in a footnote to one of the Straws in this issue. Quiet and unassuming though she was, she will be remembered by all who attended that meeting.

THE NAME OF THE BIRD THAT PUNCTURES THE GRAPE.

YOU will remember that a neighbor of ours captured a peculiar kind of bird that was caught in the act of making pinhole punctures in grapes in Medina Co. One specimen was sent to Prof. Lawrence Bruner, whose biographical sketch appeared in our last issue, and this is what he says of it:

> The bird sent is the Cape May warbler (*Dendroica tigrina*). While the bird's beak is admirably fitted for such work, that it really is the culprit seems a surprise, since the warblers are supposed to be practically insectivorous in their food habits. Just at present I do not happen to have a life-history of this bird at hand. I would suggest that you write to Dr. Merriam, of the U. S. Department of Agriculture, Washington, for a statement of grape-puncturing birds. LAWRENCE BRUNER.
>
> Lincoln, Neb.

As Prof. Bruner is a very thorough student of nature I am sure he is right in giving the name. Moreover, I find the Standard Dictionary gives the following:

> It is an American insectivorous mniotiltoid bird, usually brilliantly colored, and with little powers of song, as the common summer or yellow warbler.

The species seems to be somewhat rare in this vicinity; but there are enough of them, from present indications, to puncture every grape on a vine. As I pointed out in our last issue, bee-keepers should put their fruit-growing neighbors in possession of these facts, and thus take the blame off from the bees and put it where it belongs.

BEE-STINGS, AND THEIR PHYSIOLOGICAL EFFECTS.

A SHORT time ago Dr. R. S. Lindsay, of Philadelphia, wrote us, asking for information regarding the effects of stings on the human system. I spent considerable time in looking over our back volumes; and as the reply I made to the doctor may be useful to others I decided to put it in permanent form, and here it is:

> Dec. 10.
>
> DR. R. S. L., Philadelphia—
>
> *Dear Sir:*—The average bee-keeper is not at all affected by swelling after being stung. He experiences the same sharp pain, but no fever or other unpleasant effects follow after two or three minutes. The system seems to become inured. But occasionally, when the bee stings along a vein there is an after-effect as explained on page 68 of our issue for January last. We do not know to which school of medicine you belong; but the homeopathists use a great deal of *apis mellifica* in the form of a tincture. We have been supplying Boereck & Tafel, of New York city, with bee stings in lots of 10,000 at a time. We are supplied with a wide-mouthed bottle holding about 2 ounces, and filled about two-thirds full of sugar of milk. A comb of bees is placed before a window, and from this comb the bees are picked off one by one with one pair of tweezers, while another pair removes the stings, the latter dropping into the sugar of milk. The bee in each case is crushed immediately before the removal of the sting. In this way the stings are removed until the whole number are in the jar, when it is corked and sent to the parties named. The apiarist can usually work only about three or four hours a day at removing the stings; and even then he experiences pain in the eyes, and a sort of sickness from inhaling the odor of the poison.
>
> As you see by the references below, there can be no question but that the stings do relieve certain kinds of rheumatism; but just what kinds I am unable to say. A letter addressed to the persons whose names are attached to the articles would probably secure the desired information. The following is a list of the journals referred to:
>
> 1896, Jan. 15, pp. 51, 68; May 15, p. 386; July 15, p. 528.
> 1894, Aug. 15, p. 661.
> 1893, Sept. 15, p. 713.
> 1892, Sept. 15, p. 699.
> 1891, Sept. 15, p. 748; June 1, p. 486; April 15, p. 306; Dec. 15, p. 961.

The doctor is investigating the subject very thoroughly, and has promised to send us an article later on, giving the physiological effects of bee-stings, especially so far as they relate to the cure of various kinds of rheumatism.

"BEE-KEEPER FRED ANDERSON."

IN all, there have been just three persons who have protested against Mr. Martin's story, out of the large number who have spoken very highly of it. Perhaps these three friends (and there may be others who think as they do) have not even read the story. Perhaps they never read *any* stories, from conscientious scruples. With such I have no argument at all. While I know there is a class of novels whose tendency is demoralizing and bad, Mr. Martin's serial is both instructive and moral in its tone. The author himself is an earnest Christian and an active temperance man, and believes in inculcating Christian ideas and principles in every thing that he has to do with. Only the other day we received a letter from a Christian missionary, congratulating us on the excellent moral tone of the serial.

I said the story was instructive. In all that Mr. Martin has written, I do not believe he has ever portrayed California life and incidents any more faithfully and vividly than he has done in this story. Indeed, I believe it is nearly all based on facts, and that the characters that he writes about have been, in some instances at least, real.

It is impossible to please all. Indeed, a few, very few, object to the Home Papers, and a few also can't see any use of the footnote; but the very great majority have expressed themselves emphatically in favor of both.

WINTERING, AND THE VARIATION IN CONSUMPTION OF FOOD.

DOOLITTLE makes the point in the *Progressive Bee-keeper*, that the consumption of food is very much less during the first part of the winter, or when bees are quiet, than later on, when they become uneasy; that it is about a pound a month at first, and from five to eight pounds a month after they have become uneasy. This is entirely reasonable and probable, though I doubt whether there are many other bee-keepers who have noticed the difference — certainly I had not.

I do know that, when I was sick some two years ago, and on the verge of nervous prostration, I was starving to death with plenty to eat. It seemed to me as if it were necessary to eat two or three times as much food in order to keep up my strength (and then didn't do it) that it *now* requires while in perfect health (thanks to the beef treatment).

The bees, during the fore part of the winter, are in a condition of health; but later on, the retention of the fæces causes a condition of ill health, uneasiness, and, consequently, a larger consumption of food.

Mr. Doolittle, in speaking of the difference in the amount of food consumption, probably had reference particularly to cellar wintering. Bees, if wintered outdoors, especially in localities where they can have occasional flights, probably will not consume much more toward spring than they would in the fall, the reason being that they have an opportunity for a cleansing flight.

The whole question is interesting and practical; and if we can keep down the tendency toward disease in the spring — that is, by feeding them pure wholesome sugar syrup—then I think the food consumption will not vary greatly from the early to the latter part of winter.

MR. BENTON AND APIS DORSATA.

PROF. A. J. COOK, in the *American Bee Journal*, deplores the action taken at the Lincoln convention against the importation of *Apis dorsata*, and wonders whether the prejudice against one of the employes of the Agricultural Department, Mr. Frank Benton, was not really the foundation for this action. If there were objections to the person who would be likely to be employed by the general government, then he would "make the objections to the individual, and not try to balk the enterprise."

It might be stated, however, that, if Mr. B. is a *persona non grata* to the mass of bee-keepers, or their leaders, there is another man, Mr. W. K. Morrison, who is, perhaps, just as capable of performing the task. He is anxious to undertake this work, and his plan has been already outlined in these columns. Perhaps it is not necessary to repeat that I have been all along in favor of this plan, because it does not involve the expenditure of money on the part of the government. What Mr. Morrison does need, however, is personal influence of men in high standing in the councils of our nation. He would expect to secure the coöperation and assistance of other nations in a similar way, and all countries alike would share equally in the benefits, or in proportion to the assistance rendered. I do not believe that bee-keepers as a rule would be opposed to such a movement, and perhaps this would satisfy the desire of Prof. Cook.

THAT HONEY-JUMBLE RECIPE A SUCCESS.

IN our last issue, page 884, Dr. Miller gave us, under the heading of Straws, a recipe for making honey-jumbles. You will remember I said in my footnote, the getting hold of this recipe was a real acquisition; but I feared that the women-folks of our homes would not be able to duplicate the jumbles sent out by the large bakeries, in quality and lightness. Well, it seems the women-folks in Dr. Miller's family have made some jumbles that, to my notion, are fully equal to those we have been in the habit of buying. Indeed, the flavor is a little superior, owing to the better quality of honey used. Well, here is what the doctor says:

> I send you by this mail a sample of honey-jumbles made from the recipe given in "Straws," Dec. 15, the only difference being that, instead of considering 4 ounces of soda the right thing for a barrel of flour, the cook insisted it should be 4 *pounds*. I've no doubt that's correct. Of course, we didn't use the whole barrel of flour at the first trial. If you like them as well as I do, I think you'll admit that there must be some unselfishness in me to send you the last of the batch—they were made several days ago—instead of eating them myself. I've eaten four to six at a time without killing me. If this crowded season ever gets by so there's more time for cooking I want to have the same recipe tried with less water and all honey, instead of honey and molasses. The only trouble with this lot was that the dough was so soft it was hard to handle.

After testing them myself I gave samples to our printers, and they all united with me in pronouncing them to be as good as the best jumbles ever made. "Barney," the head printer, would have to get his wife to make some, and I am of the same mind.

It seems there was a slight mistake, probably, in the recipe. One of the ingredients was carbonate of soda, 4 ounces, and it appears that it should have been 4 *pounds*. The whole recipe, then, with this correction, will read as follows:

> Flour, 196 lbs.; lard, 3 lbs.; honey, 12 gallons; molasses, 3 gallons; carbonate of soda, 4 lbs.; salt, 1 lb.; water, 3 gallons; extract of vanilla, 1 pint.

Of course, the proportions in this receipe are too large for domestic use; and for the convenience of our women-folks I have reduced it to one-fortieth, figuring 12 lbs. to the gallon of honey and syrup. The recipe will stand thus:

> Flour, 5 lbs.; lard, 4 oz.; honey, 3½ lbs.; molasses, 14 oz.; carbonate of soda, 1½ oz.; salt ½ oz.; water, 1 pint; extract of vanilla, 1/10 gill.

If the honey is not of heavy body, increase the quantity slightly. Perhaps the women-folks would prefer to have this reduced to "cupfuls;" but as such a measure is very indefinite, we can get at the result more exactly by giving the figures in pounds and ounces, and I suspect it important that the proportions be as near exact as possible. I believe it would be possible to use all honey instead of molasses and honey.

If all the women-folks can succeed as well as Dr. Miller's have done, this recipe is going to be of great value to bee-keepers. Every bee-keeper who has honey to sell ought now to be able to offer to his customers honey-jumbles, home-made, and they will sell like hot cakes.

It might be well to call attention to the fact that jumbles will keep almost indefinitely. Indeed, they seem to improve with age. If they get a little dry, shut them up in a bread-crock and then see how moist they will become.

NOTES OF TRAVEL

BY A. I. ROOT.

AT THE ATCHLEYS.

Dec. 8.—I omitted to mention that the bees by the office door have not only become accustomed to people passing, but so used are they to the tramping on the floor that stamping and jarring the floor has no effect on them whatever. They have apparently forgotten how to sting; and although they are handled repeatedly without smoke or veil, no one has ever been stung by them.

A MULE WITH A BEE-VEIL.

In unloading bees it is often desirable to drive right in among the hives. Well, bees seldom trouble a horse more than to buzz about his head; therefore the mule trained for this work wears a bee-veil made on purpose for him, and thus equipped he goes anywhere without any reluctance whatever.

THEIR 500 NUCLEI.

The Atchleys have a little more than 500 hives now, devoted to queen-rearing; later on they will be divided so as to make a full thousand. They are located in six apiaries, four to seven miles apart. Yesterday we visited the Cyprian apiary, the Holy Land apiary, and the Carniolan apiary. So far as I can learn, they have a locality here that furnishes honey to some extent every month in the year. They do *no feeding*, and with any decent care there need be no robbing. I have looked over hundreds of hives, and there were almost no weak ones, and none but that are well provisioned. As a rule, eight frame Dovetailed hives are used. I suggested that these were larger than necessary; but, all things considered, I believe they are about right. With smaller hives there would be more trouble on both extremes—getting out of stores, and getting the hive full of honey or full of eggs and brood before the attendant got round. During 1896 they have raised about 3000 queens and secured about 10 tons of honey. Our veteran readers may remember I once advocated, pretty strongly, putting the hives on the ground, with no *bottom boards*. Well, here is a whole large apiary worked on that plan. It is Willie Atchley's apiary of Holy Land bees. It stands on a sandy knoll shaded with wild grapevines and live oaks. The sand is banked up a little around the hives, and the entrance is contracted by sand piled up a little on either side. It seems to work admirably. In a damper soil I would prevent rotting the hives by a small stone or half-brick under each corner, then make it tight around the bottom by clean sand that will dry out quickly after a rain. Any kind of bottom-board is pretty sure to make a harbor for insects, to admit cold air underneath, to rot, warp, or be in the way. This stock (100 colonies) of Holy Land bees has all been reared from a queen from Baldensperger, direct, in 1894.

There isn't a trace of bee-paralysis or foul brood anywhere in this part of Texas. I have looked the apiaries over carefully, but didn't see any thing of the symptoms of paralysis.

HOW TO CUT PERFORATED ZINC FOR ENTRANCE-PASSAGES.

Have the strips so that a *very narrow* piece rests down on the bottom-board. It is like this: It bothers a horse to step over a board a foot wide, but he can step over a strip *3 inches wide*, when set edgewise on the ground, without any trouble. So with the bees. To get the correct spacing there must be just a little zinc left on the lower edge, so as to exclude the drones but to admit a worker loaded with pollen; don't trouble him to raise up his heels so he can get over a board more than "knee-high."

THE TEN-YEAR-OLD BEE-KEEPER AND ENGINEER.

Leah Atchley, ten years old, has just been showing me through her apiary of ten hives. She can lift out the combs and find the queens as deftly as almost any one whose eye meets this. Not only this, but when the factory was started up to fill a small order she took her post as engineer and fireman. It is worth a lot to see her black eyes sparkle as she showed me she was as much at home here as with the inside of a bee-hive. Her father says he would rather trust her to keep up steam, and see that every thing is "O. K.," than any hired man he can get. As the boiler is 12 horse power and the engine only 10, it is not very hard to do the firing.

It is in just this way that the whole family help in the business. While Leah looks after this department, Charley, aged 17, runs the planer, saw, and other machines. Miss Amanda is cashier for the firm; takes charge of the funds, does the banking, pays off the help, etc.

You must not think from what I have written that their children are all work and no play. If you could hear them now you would think from the childish voices and merriment there was no lack of recreation. It is 2½ miles to school, it is true; but "Nick," aged 13, just brought me his deportment-card, to show that he stands from 90 to 96 in nearly all his studies. The 96 was for penmanship, and he got it by doing business *with a pen* in his father's office. His "arithmetic" was almost as high.

THE CLIMATE OF SOUTHERN TEXAS, ETC.

Beeville is about 30 miles from the Gulf, 50 miles by rail; Corpus Christi is about 60 miles by rail, and quite a business is now growing up there in early vegetables for the North. Before the freeze I have spoken of, tomatoes, wax beans, summer squashes, etc., were being shipped daily. This freeze during the last of November was a very unusual thing. Many winters pass without frost enough to damage the most tender stuff. During the great Florida freeze of two years ago the orange-trees about here were either killed or greatly injured. I have now been here three days, and the temperature has ranged from 46 to 76. On Sunday, Dec. 6, the sun was so hot I was glad to see it go down. During the day a shade-tree was very refreshing.

THE EXPERIMENT STATION.

Yesterday we visited a branch of the Experiment Station, under the management of F. A. McHenry, about five miles from Beeville. He is testing oranges, lemons, pineapples, grapes, etc. Nearly a hundred varieties of grapes and as many of peaches are being tested. By the way, friend Atchley had so many peaches last year that bushels were allowed to go to waste. One reason was, however, they needed marketing at just their busiest time with the bees. The fruit is rather smaller here than further north. I was told by some that garden stuff didn't do well; but with plenty of water they get fine crops on the experiment farm.

Before Mr. McHenry was given the management he sold $227 worth of cabbage from two-thirds of an acre, on a little garden-patch in Beeville. Not only this, but he produced similar crops on the same land year after year. Of course, he used large quantities of stable manure, and water when needed; and yet most people around here will tell you stable manure won't answer—"no good in this climate." This may be to some extent true, without water. On the station farm, McHenry makes a 12-foot windmill water about three acres very well; but I think the wind is more regular every day here than in the North. The canagarie root does finely here, as, in fact, do all roots, pretty nearly. Sweet potatoes and yams (including the vineless) are right in their home, and, of course. no irrigation (as a rule) is needed. They bring 50 cts. a bushel now. Irish potatoes can be grown only in early spring, and they must be used pretty soon. for they won't keep through the summer. McHenry made last spring $75 from an acre of early potatoes. The variety that did best was the Triumph—the same I have placed at the top of the list for an early potato in the North. The numerous varieties of non-saccharine sorghum, kafir corn, and all the rest, would puzzle a botanist, let alone a farmer. The chicken-corn sorghum will grow two crops in a season. Just cut it when the seed is ripe enough for chickens, and another full crop springs right up from the suckers. If you break the stalks down, the chickens will do the harvesting. Eggs are 20 cts. a dozen, and chickens can be hatched every day in the year.

Now, you need not all move down here, for both McHenry and Mr. A. assured me there are any quantity of folks here, just as there are up north, who are going about complaining they can't find any thing to do. Apples won't do here, but plenty are grown in the northern part of the State. W. C. McDowell has a very pretty irrigated garden right in the town of Beeville. I was pleased to see a beautiful stand of transplanted onions. They are red Bermudas. He says they will mature in April. and he often gets a nickel apiece for onions averaging 1 lb. each.

A great variety of hardy vegetables stand out all winter. Cabbage was considerably injured by the freeze, but this does not often happen. Cotton cloth is used over the plant-beds, but is more to keep off the hot sun than to protect from frost. Winter cabbage brings 5 cts. per lb. at retail. We saw a few heads ready to cut, and fresh cabbage brings the above price this month. McDowell scatters fresh manure, both stable and poultry, very liberally through his cabbages; then he cultivates it in thoroughly, turns on water, and says the manure never hurts *his* cabbage. When I was introduced to the manager of the experiment station he said he had just purchased our tomato book, so you see we received a warm welcome, both from himself and his good wife. The State has given him 100 acres of beautiful land, and his work is to see what can be grown on it profitably.

Beeville is a town of windmills. They get water at about 50 and also at 100 feet deep. The deep vein washes nicely with soap, but is somewhat alkali, after all. The price for drilling wells here is only 50 cts. per foot, the owner paying for all pipe needed to case off the surface water.

I must not forget the fireflies of South Texas. One warm night they were scattered over the ground so that it literally sparkled with twinkling jewels. When I tried to catch them they either "went out" or hopped like a cricket. I am told they are a sort of snapping-bug fireflies.

Somebody brought Mr. Atchley some grape *cuttings* from California. They were planted in his garden in front of the house, and in less than *one year* he had a few bunches of ripe grapes, and these were cuttings only—no roots at *all* to start them.

Dec. 12.—Here I am at Tempe, Arizona, among the grand old mountains once more. If the chap who wrote—

I love thy rocks and rills

had taken a trip through Arizona he could have found lots to love, especially as far as "rocks" are concerned. Next to the mountains come the great alfalfa-fields, kept as green and bright with the sparkling water as was ever a clover-field in May or June. It made me think of the words of Scripture, "He maketh me to lie down in *green pastures;* he leadeth me beside the *still waters.*" I really do not know of a more refreshing and reviving sight than a field of alfalfa in the month of December; and then to see droves of cattle, sleek and happy! In crossing the Texas plains, somebody told me they figured it wanted five acres to a cow on those ten-thousand-acre pasture-lots. My impression is that some of the alfalfa-fields well irrigated might reverse the proportion, and put five cows on *one* acre.

By the way, the past season has been a grand one for alfalfa honey. Mr. J. P. Joy, Secretary of the Bee-keepers' Exchange, produced from 500 colonies, in only two apiaries, 50,000 lbs. of honey. Mr. J. Nippert and others have done as well or better. This organization has been for some years past purchasing the cans for their members by the carload, and in the same way the secretary makes sales and ships the combined product of all its members: and from what I gathered at the convention I think it has been of great benefit in both ways. They have regular meetings four times a year.

SUPERSTITIOUS MOUNTAIN.

Dec. 14.—Before daylight my brother, J. H. Root, Mr. John Nippert, of Phœnix, and myself, started out—I on my new Columbia wheel, and the others in friend Nippert's buggy. Jess (my brother) and I rode the wheel alternately; but toward noon I went on ahead so as to get my nap before dinner, and be in good trim for the mountain climb in the afternoon. The day was most beautiful, like all the days so far in Arizona, although the morning was rather cool. After passing the beautiful town of Mesa, and getting clear out on the wild desert, I found the most beautiful wheel-riding I have ever found in the world. It is true, I have seen gravel pikes, shell roads, and asphalt pavements equally good, but never before have I seen the whole wide country so I could go where I would and find it equally good *everywhere.* There had been just rain enough to form a crust on the surface of the sand, and this seemed to leave hardly a trace to show where the rubber tire had passed. There were bushes, but so scattering they made one think of a tastily arranged garden; and the broad, constantly curving walks between the shrubbery made an ideal ground for the wheel.

As we neared the mountain, beautiful flowers began to appear, of varied colors and of different form from any I had ever seen. At different points along the way the song of birds rejoiced my heart, and with it all the fascination of the beautiful weird mountain that came nearer and *nearer* every moment caused me to sing again and again, "Praise God, from whom all blessings flow."

It is 35 miles from Tempe to the mountain, but the latter seemed so near about 10 o'clock I felt sure I should soon be there. But the nearer I came the more the road seemed to unwind, or lengthen out, until I began to think there was some ground for giving the mountain its name. I was always *almost* there; and the road seemed always dipping down into a ravine just at the foot of the mountain; but the "downhill" didn't seem any easier, and finally

I began to get both tired and hungry. When I did at length fetch up at the store at Goldfield I was told my road had been *uphill* all the way, and that, in fact, I was on ground 200 feet higher than Tempe.

I was soon at the mining boarding-house, and disposed of a cup of coffee and a piece of pie in a very short space of time. None but a wheelman can tell how really delicious a little refreshment is after such a ride. The obliging Chinese cook then placed at my disposal quite a dainty cot on which to take my nap. It was in a cool tent outside, and, in fact. all the buildings in the town, nearly, are roofed and sided up with cotton cloth. It gives air and light both, and seems to be warm enough for this climate.

Jess and Mr. N. came around in about half an hour, and then we had dinner for sure. Although every thing is hauled here by team from Tempe (the nearest railroad station) we had nice meals at an average of only 33⅓ cts. each. We were told a whole day is needed to climb the mountain and return, but we decided to make the best we could of it in half a day. A large canteen of water and a basket of lunch was all our luggage. When a man said it was still two miles to the foot of the mountain we could hardly believe him. Why, there were those great towering rocks *right in front of us* now. Really we tramped hard for an hour before we were in the trail at the foot of the canyon.

Let me say right here, that we got into several sore troubles by carelessly losing the trail. Whatever you do, don't lose the trail, when there is one. in climbing a mountain.

I told you the mountain always seemed nearer than it actually was. Well, when we were right before it, a column of rock that might be a thousand or more feet high seemed to bend over and menace us by threatening to fall on our heads. There was something weird and uncanny about it, but awful in its grandeur. I can't tell now whether that rock is straight up and down, or whether it leans out from the mountain. Again and again I gazed at it and then sat down to gaze at my leisure, and finally voted the sight of it alone was worth the whole trip. With its strange domes and spires and fanciful turrets and battlements, I think it should be called the *Enchanted* Mountain.

The trail first led up a canyon, and I tell you it is work indeed to climb it, even if you follow the trail. If you get off it, look out. At every turn, however, you are rewarded with new beauties, lofty rocky spires of ever changing form and color; and a little further along, pools of deliciously cool water, in the water-worn cavities of the rock. At one point you walk over a tiled floor almost smooth, only on an incline. The tiles are diamond-shaped because of checks or cracks in the rock, and they have been smoothed and polished by the gravel that has washed down over them for ages. The slope of this smooth floor is so great at some points that we crept on our hands and knees, and finally we had to leave the bed of the dry canyon and work along loose rock at the side, without any trail for a guide. My plan was to reach the backbone of some of the lower cliffs, and then crawl up on the ridge; but when I got so as to look through the "fins" on the backbone I was terrified at seeing the other side was a fearful steep cliff almost straight down 500 feet or more, and only sharp and needlelike spires of rock on the summit. By dint of crawling, careful climbing, and helping each other, we managed to get up at the very top of every thing, except a rock that looks like the crowning turret or dome, when the mountain is seen about 50 miles away. We sat at the foot of this dome and looked up. From our position it looked like a whole and complete mountain; but from the valley it was only a sort of "knob" on top. I rather wanted to scale this too; but my companions said if we did we should have to stay up there all night, and we had no blankets, etc. I consoled myself by taking a nap for a few minutes, with the old rocky mountain for a pillow. The sun had warmed the rock so it was quite comfortable.

Then *down* we went. We essayed to take a shorter cut, but several times we were brought to a standstill by a precipice straight down, right in our path, and then we went back and tried another route. I slipped once and barked my shins; then I got a cactus, with its spines, into the other leg and in one arm. These cactus spines are barbed like a fish-hook. They go into the flesh very easily; but if you try to pull them out, "Ouch!" It is really worse than a bee-sting if you try to draw them out slowly. If you jerk them out quickly, however, it is much better; but each spine leaves an ugly wound. The ball of spines looks like a chestnut-burr, but they are larger. Twice the spines went clear through the leather of my boot, and pricked my feet. Jess sat down on one while sliding down the rocks. He said I shouldn't tell. Mr. Nippert stood the tramp better than either of us. We found many beautiful flowers on the mountain peak, never found in the valley below; and friend N. found an Italian bee clear on the top. The view from the top, of the valley below, and the mountains on the East piled peak upon peak, was grand. The little town where I am now writing looked like a small apiary of queen-rearing bee-hives.

This is a new mining town away off in the mountains. There are about 60 hands, and the stamping-mill runs day and night.* A very pretty little reading-room has just been put up, and it is here I am writing. I feel considerably bruised and sore from the severe exercise of the day; but my appetite is tremendous, and my digestion excellent; I am getting in training for my final expedition to the Grand Canyon of the Colorado, *280 miles* distant over the mountains.

PURE DRINKING-WATER.

In New Orleans, in Beeville, and in San Antonio, Texas, the water I drank was more or less brackish, or alkaline; and even though I drank boiled water I had a metallic taste in my mouth, and began to feel a longing for rain water, which I could seldom get in traveling. Later I was troubled with painful eruptions all over my body. My brother, who is a druggist, suggested it was the change in drinking-water, and went to the Tempe ice-factory and got me some distilled water. I can't tell you how delicious it was. I drank it again and again. In 24 hours the bad taste in my mouth was gone, and in another day the eruptions began to disappear, and now they are all gone. A large canteen of this pure water was carried up the mountain, and it added to my comfort and enjoyment very materially. I do think rain water boiled, or distilled water, would of itself cure many of our troubles with poor health. On p. 752 we pictured an apparatus for producing distilled water at very little expense, and I fear not enough attention was given to a very valuable invention.

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* Gold is mined here by sinking shafts and running out drifts, much as coal is mined in the East. The rock is then pounded up by a great stamping-mill. By means of water and quicksilver the gold is extracted. We found abandoned mines, holes of all sizes all over the valley and up the sides of the mountain. No one knows how much the stamping-mill is producing; for if it should get out that they had "struck it rich," everybody would be crowding around them.

There, I have done a big day's work with muscle, and a pretty good evening's work in writing it up, and yet I feel tiptop.

Good-night, and may God bless you all, dear friends and readers of GLEANINGS.

OUR HOMES.

The Spirit of the Lord is upon me, because he hath anointed me to preach the gospel to the poor; he hath sent me to heal the broken-hearted, to preach deliverance to the captives, and recovering of sight to the blind, to set at liberty them that are bruised.—LUKE 4:18.

A bee-keeper asked me to take a ride with him. We were going quite a long trip, and I expressed fear that his light young pony might not be equal to the task. He said we would let her take her time, and he guessed she would make it all right. She seemed very docile and willing, but I noticed she was only partly "broke." She was rather poor in flesh, but he explained this by saying he had owned her only a short time. Our road was right along the track; and when a train came in sight we unhitched her, and my friend had quite a little tussle with her; but he held her so she could face the danger, was very kind and gentle with her, and it was soon over. He calls her "Pet," and I soon found he and Pet were getting to understand each other better and better every day.

Pet's sad story was something like this: Her owner happened to want a horse when she was about three years old. Because she didn't seem to understand, and wouldn't pull on a heavy load the very first day she was put into a harness, he whipped, pounded, and clubbed her, until there was almost nothing left of the poor little colt. She came of highbred stock, especially for *speed*, and not for heavy work; and so when her master didn't succeed in getting her to pull he in disgust sold her, or what was left of the poor thing, for only $12.50. My friend, who is a Christian man, found her at this stage, and gave $20.00 for her. Bruised and bleeding, he (like a good Samaritan) took her home, won her little horse heart by treating her kindly, and she soon became a "pet" indeed. He bought a light, strong covered buggy, a neat little harness, and Pet soon showed her gratitude by just making the rig "spin" as she carried him back and forth between his apiaries. On our last trip, as he was hitching her up I noticed he had trouble in getting the crupper in place. When asked about it he replied:

"Why, Mr. Root, you surely have noticed how her back down near the crupper is caved in; well, this was done by a heavy blow with a club before I got her."

I had noticed this, and had wondered if it was a result of the pounding. But, notwithstanding, pet seemed in a hurry to get started, and she carried us two men almost 50 miles in a day, and seemed as bright and fresh, almost, during the last mile as she did the first. The whip was never used once, to make her go, and she never once slackened into a walk unless her master made her do so. During the week or more that I knew her she had picked up amazingly, although it seemed as if a large doublehandful of oats was about all she required at a feed.

Does your heart boil with indignation as you read this little story? I know of at least one little *woman* whose mild gray eyes (ordinarily mild) will fairly blaze as she reads this; and sometimes they blaze to good purpose, too, in behalf of the bruised and pounded horses. What is the remedy, friends? We have a Humane Society, I know, and it is doing a grand work; but the greatest work is to be done along the line of our text in "setting at liberty them that are bruised." We want more "good Samaritans;" but, above all, we want the horsemen and the horse-owners converted to the Lord Jesus Christ, then we change the hearts of these fiends in human form, and thus bring "deliverance to the captives" for both man and beast.

Not very long ago, in a town of 10,000 inhabitants the Salvation Army was holding meetings. While they were singing "Is your name written there?" one of the workers noticed a young woman in the audience, looking very serious. In a gentle voice some one said to her:

"Dear sister, would you not like to have your name written there?"

She did not reply, but burst into tears. When further pressed she replied:

"Oh if it were only *possible!* but it can never, *never* be written there," and then she sobbed again convulsively.

Reader, what do you suppose those Salvation Army workers brought to light that night before they were done? Something like this: Some years ago, when this girl was only a child of about 14, having no home she went to keep house for a relative, a man grown. This person (*not* a *man*) set to work to *rob* the child, whom he was expected to protect. To rob her of her *money?* Bless your heart, she had no money, and that is why she was obliged to work out. She was too young to work for strangers, and so she was to have a home with a relative. Besides, this relative belonged to some kind of a religious organization—at least, I think he did; but those who knew him best were aware that he was a bitter skeptic. He was one of that hard sarcastic kind who call all Christians hypocrites. Why, I have seen so much of this in my life that I have begun to think that, if I were living a life of daily *crime*, I wouldn't talk against Christians and the Bible, for fear folks would suspect something. Before that girl left the meeting she made a full confession, accepted Christ Jesus and him only, and started out on the new life, bearing a cross that few of us can even comprehend. Let us see: She had by this act cut off every friend she had in the world, unless it was the Salvation Army people she had just become acquainted with. She was keeping company with a good young man, but of course *he* would drop her at once and for ever. Well could she say in the words of that grand old hymn:

Jesus, I my cross have taken,
All to leave and follow thee;
Naked, poor, *despised, forsaken*,
Thou, henceforth, my all shall be.

Her new friends found her a home, and she has ever since lived a consistent Christian, so I am informed. She lost friends and station in society. The great world turned against her. No, no! Not the *Christian* world. *God forbid!* On the other hand, her load of guilt and sin was gone. That burden she had borne for so many years in silence was lifted, and the love of Christ Jesus shone into her hungry soul. Now her name *could* be "written there." Oh glorious thought! Under similar conditions the dear Savior had said, "Her sins, which are many, are forgiven."

Let me use again the closing words of a well-known hymn:

He looked on that lost one, "her sins are forgiven,"
And the sinner went forth in the beauty of heaven.

Just a few thoughts in closing. The Salvation Army are noted the world over for just this kind of work. Dear reader, if you have ever spoken ill of them, don't do it again. Are *you* a follower of Christ Jesus? are you a member of any church? then stir yourself, as in the language of the text. Look after the horses, and make yourself felt in your community. But don't stop there. Look after the fatherless and motherless girls. I am sure there is need of it. Within the past year, two cases such as I have mentioned have come to my notice, more than a thousand miles apart. Do you say there is a law? Yes, there is; both cases were up in court. In one the gray-headed sinner got clear, so people said, because he had lots of money, and the poor girl had none. In the other, he paid the girl some of his money, and is supporting her child. In the latter, my advice was asked about keeping the girl after the facts of her former history came out. I simply asked:

"Is she doing her work well? is she faithful and efficient?"

"Oh, yes! she is the best help I ever had. This thing happened years ago, when she was a child. There has never been a breath of reproach against her since."

"Then keep her, *by all means*. Give her all the help and encouragement possible. When Christ Jesus has forgiven, it ill becomes any of *us* to judge or condemn."

Now, then, let us all help on the work of "healing the broken-hearted," "deliverance to the captives,' and giving "liberty to them that are bruised."

CHILD-TRAINING.

[The subjoined paper bearing the foregoing title was read originally at the Congregational Conference at Mallet Creek, of this county. As there was a general desire to have it given again, it was read before the Parents' Meeting of this place, which meeting I had the pleasure of attending. I decided in my own mind that it ought to be heard by a much larger circle of readers, and at the close of the meeting requested that I might have it for publication. I had scarcely made this request before there was a general expression on every side to have it put in pamphlet form, as nearly all of the auditors had friends whom they wished to read it.

Miss Smith is superintendent of the primary department of our Medina public schools, for which position, by her beautiful Christian spirit, her special training, and long experience, she is exceptionally well fitted. I wish she might be heard by every mother and father in this land; and those who feel as I do about it I hope will see that it is distributed among friends. After this journal it will be put in the form of a neat little booklet, at a price just above cost; viz., 2 cts. per single copy; 17c for 10, or $1.50 per 100, all postpaid. At 2c we will send single copies to any address given in this country. Every family ought to have one, and I hope our Christian readers will help scatter it. Remember that the time to train a man, and so cover a multitude of sins, is when he is a child.

N. B.—We shall have room to publish only half of the paper in this issue, and it will, therefore, be concluded in our next.—ED.

CHILD-TRAINING.

What is a child? and how shall he be trained? are two of the most important questions that can be asked. "What is this lump of flesh, breathing life, and singing the song of immortality?" If we could answer this question perfectly we might say to the child as Tennyson said to the little flower plucked out of the crannies:

> Little flower, if I could understand
> What you are, root and all,
> I should know what God and man are.

Patterson Du Bois, in "Beckonings from Little Hands," says of his four-year-old boy, "I would not have hurt him for the world, but I did not know what a child was, and consequently could not shield him from myself." Think of it, parents and teachers, helpless childhood wholly dependent for guidance and protection upon those who, like this father, do not know what a child is, either mentally, physically, or spiritually, consequently can not shield him from their ignorance, biased judgments, and moral deformities.

I often marvel at God's confidence in human nature as shown by the responsibilities he has placed upon us. I can imagine the angels in heaven demurring at his conferring free moral agency upon frail, sinful man, saying, "It will never do. Man with his selfishness and downward tendencies will wreck the moral universe if given the power of choice." But I marvel more that he trusts sweet innocent childhood to the care of weak blundering humanity. It must be for our sakes, that this responsibility may stimulate us to our highest and best; that the father, feeling his need of divine help in bringing up his family rightly, may himself be led to the Strong for strength, and to the Wise for wisdom; that the mother, desiring for her children the privilege of prayer, may herself first call upon the name of the Lord.

What is it to train a child? I was glad to find that Webster bears me out in saying that it is not thwarting, breaking, scolding, or subduing, as many seem to imagine. but guiding, leading, drawing, and directing. It is to form by practice. There is a good deal of so-called training which is only repression. Training develops, strengthens, and builds up. Repression weakens, discourages, and stupefies or hardens, and makes the child rebellious and deceitful. If, instead of "Johnny, sit still," and "Johnny, don't tease the cat," and "Johnny, you make me nervous,' you would only find something that Johnny might do, how happy he would be, and what a relief it would be to your tired nerves! If you knew what a child is you would know that every muscle in the little body aches to be on the move, and every nerve tingles with life and energy, and that it is your work to direct these into right channels, not repress them. It is the empty hands, heads, and hearts that go astray. It was the empty house swept and garnished, you remember, into which the seven wicked spirits entered. If we will only occupy hands, heads, and hearts with the good and the true, we need to concern ourselves very little with the bad and false. For example, if a child is inclined to be cruel to birds or other animals, instead of talking to him so much about his cruelty, endeavor, as you have opportunity, to interest him in the many curious habits of animals, the building of their nests and homes, and the devotion of the mother to her young. Picture to him the life of constant fear and danger that these timid creatures live, never safe, always alert. Call his attention to the provision made by our heavenly Father for their safety. Tell him of the preparation made by the wild animals for winter, reminding him that no such preparation is needed for the domestic animals, as they have been entrusted to our care. With suitable stories lead him to sympathize with them in their suffering when robbed of their young, or otherwise mistreated, and teach him that it is the privilege of the strong to protect the weak.

Sometimes our "don'ts" suggest to the child the very course we wish him to avoid, and which but for us he would never think of. No doubt many a poor fly has lost his legs and wings because some child had been repeatedly told that was a thing he must never do. "The thought is the first step in every act. Every thought has a tendency to repeat itself. Every repetition of the thought strengthens the desire for action. Hence to suggest the thought of a wrong deed is to sow the seed of a wrong action."

Another danger of "don'ts" is that they antagonize the child, and prepare the way for a spirit of opposition and rebellion. Mrs. Hannah Whitall Smith tells of a little boy who said to his playmate, "Let us cut ourselves with this knife." When asked why he wanted to do that he said, "Because mother told me not to!"

Judicious praise is a great help in child-training. Commendation of a generous deed will incite to greater generosity than a whole book on the meanness of selfishness. A bad person may fill us with disgust, but only a good one can inspire us with noble purposes and high aims. Nothing can save like high ideals. That is what God gave us Christ for.

Nor must we forget that character is formed by *practice*. There is positively no other way. Every time we succeed in getting a child to make a right choice, or voluntarily do the right thing, we strengthen the upward tendencies of that life, and make it stronger to resist the next temptation. It is as true in the moral world as in the physical, that exercise strengthens and neglect weakens. It should be our care to strengthen the good by exercise, and weaken the bad by neglect.

Much valuable time is usually lost before the work of training the child begins, because parents do not realize the strength of habits and the rapidity with which they are formed. I know a child who is being allowed to become confirmed in a disagreeable trait because the mother is hoping the child will grow ashamed of it as she grows older, and correct it herself. She may, but it will be at the cost of much mortification and loss. Too many wait till the fair garden is well covered with weeds, then attempt to pull these up and sow good seed. The results from this course are so meager that such soon grow weary, and then ease their conscience with such old saws as "Theories are all right until you attempt to reduce them to practice;" or, "What is bred in the bone stays long in the flesh;" or, "The child is just like his father's folks; it's no use to try to do any thing with him;" or, "He's no worse than other boys. Boys will be boys;" and then with a pious resignation that the Lord never asks for, they pray instead of working, and trust God to do that which he has given them to do.

Many fail to accomplish all they might in this work for the child because only half believing in the possibilities of child-training. According to your faith and skillful persistence will it be unto you, and your persistence will depend upon the measure of your faith.

I was trying at one time to teach a left-handed pupil to use the right hand; and as it was an especially difficult case I asked an older brother if he would not help me by taking some pains at home to teach his little sister to use her right hand. He cheerfully consented, but came the next morning to tell me that it was no use to try to do any thing about it, for he tried a whole hour the evening before, and she was just as left-handed as ever. While some, like this boy, lack persistence, others are too much inclined to bow to heredity, thinking if a child inherits a bad trait nothing can be done about it. But heredity is not like the laws of the Medes and Persians. It can be changed. Heredity is a powerful factor in any life, and should be considered; but I am convinced that environment and training are much stronger forces. We are born with tendencies only, not cast-iron bands or molds. The very ignorance and helplessness of each new life is a pledge of opportunity to advance in spite of all that has gone before. When horses, dogs, and monkeys are being trained, shall we leave the children to simply grow up? Notice the results from physical training—chests are developed, muscles strengthened, stiffened joints made supple, and the whole carriage changed from awkwardness to grace and ease by a few minutes' daily practice of correct rules; and one of the delights of the teacher is to see dull eyes brighten with intelligence, stupid faces grow thoughtful, and dull minds quicken by simple adherence to the here-a-little-and-there a-little method kept up day after day, week in and week out. I know character may be changed by this same method, for I have seen the quarrelsome grow peaceable, the quick-tempered gain self-control, the impatient become patient, the impudent grow respectful, and the careless and inattentive grow studious by persistent, skillful, loving management. O fathers and mothers! how I wish you might all realize what a wonderful opportunity you have when God places a little child in your midst, and says, "Train this child for me"! It might well humiliate you to the dust with a sense of your unworthiness, and raise you to the skies with a sense of the high honor conferred upon you. It should send you to God in prayer, and lead you to scrutinize your life and practices as never before. Notwithstanding, how often this sacred experience is treated as a joke, or a matter of family pride and ambition, and the child regarded more as an object of pleasure to parents and family friends than as a new life to be molded for eternity. The work that might engage the powers of an angel is undertaken unhesitatingly by the thoughtless and ignorant. Herbert Spencer says, "Is the unfolding of the human being so simple a process that any one may superintend and regulate it with no preparation whatever?"

Mrs A. M. Diaz, in "Domestic Problems," supposes a philosopher in disguise on a tour of observation from some distant isle or planet to visit us. Among the objects that attract his attention are the little children drawn along in their carriages.

"Are these beautiful creatures of any value?" he asks of a bystander.

"Certainly; they are the hope of the country. They will grow up into men and women who will take our places."

"I suppose there is no danger of their growing up any other than the right kind of men and women, such as your country needs?"

"On the contrary, there is every danger. Evil influences surround them from their birth. These beautiful creatures have in them possibilities of becoming mean, base, corrupt, treacherous, deceitful, cruel, false, revengeful; of becoming, in fact, unworthy and repulsive in many ways. Why, all our criminals, our drunkards, liars, thieves, burglars, murderers, were once innocent little children like these."

"And whether these will become like those, or not, depends on chance?"

"Oh, no! It depends largely on training. Children are like wax to receive impressions, like marble to retain them."

"But who among you dare make these early impressions which are so enduring?"

"Oh! the mothers always have the care of the children. That is their mission—the chief duty of their lives."

"But how judicious, how comprehensive, must be the course of education which will fit a person for such an office!"

"Do you think so? Hem! Well, it is not generally considered that a woman who is going to marry and settle down to family life needs much education."

Our philosopher next questions a young mother:

"Where were you prepared for the duties of your mission?"

"I had no preparation."

"But are you acquainted with the different temperaments a child may have, and the different combinations of them? Are you competent to the direction and culture of the intellectual and moral nature? Have you thus, uninstructed, the power, the knowledge, the wisdom, requisite for guiding that mighty force, a child's soul?"

"Alas! there is hardly a day that I do not feel my ignorance on all these points."

"Are there no sources from which knowledge can be obtained? There must be books written on these subjects."

"Oh, yes! but I have no time to read them."

"Do not husbands provide their wives with books and other means of information on this subject?"

"Generally speaking they do nothing of the kind."

"But," adds the writer, "if our philosopher continued his inquiries into the manners and customs of our country he must have felt greatly encouraged; for he would have found that it is only in this one direction that we show such blindness and stupidity. He would have found that, in every other occupation, we demand preparation. The individual who builds our ships, cuts our coats, manufactures our watches, superintends our machinery, takes charge of our cattle, our trees, our flowers, must know how, must have been especially prepared for his calling. It is only character-molding, only shaping the destinies of immortal beings, for which we demand neither preparation nor a knowledge of the business. It is only of our children that we are resigned to lose nearly one-fourth by death, owing to ignorance and injudicious nursery management."

But the loss by death is the smallest part of it. Think of the multitudes mentally crippled and morally warped because of the lack of knowledge of those to whom they have been entrusted! The farmer, stockman, dentist, physician, each has his professional paper. The teacher expects to read and study the subjects pertaining to her work constantly; but how few parents take a paper or buy a book on the subject of child-training!

But all lack in child-training is not due to ignorance and lack of preparation. We do not do as well as we know. I once overheard a man on the train say, "I know how to bring up children." I hastily thought, "Oh! no doubt you are the man, and wisdom shall die with you!" But I listened attentively for his next remark. It was this: "Let parents *be* themselves what they desire their children to be." And I thought, "Amen!" It is not precepts children need so much as example. Every child is born with a God given passion for imitation, and copies not only your actions and words, but your very spirit, long before he is six years old. It is possible for you in some unguarded moment to undo the verbal teaching of years. A little child was once heard to pray, "O Lord, make us very stylish." Do you not see the spirit of that home in spite of the religious teaching? Listen to another mother as she is getting the children ready for Sunday-school. "Have you got your Bible, Mary? I wish your father hadn't got your new shoes a mile too big. Can you say your golden text, Susan? Here's your hat. Be careful of it. It is the prettiest hat in the whole Sunday-school. I wonder if Mrs. Jones will let Ella wear that same hat another season. Now, John, behave yourself in church, and mind what the minister says. I suppose I ought to go with you to keep you straight, but I am too tired to go to church to-day. I worked too hard yesterday."

Do you want to know what she did yesterday? She made onion pickles, chili sauce, and ginger-snaps in the morning (she calls this feeding the hungry); in the afternoon she put five rows of inserting in Mary's new dress, tucked Susan's skirt, and ruffled an apron (this she calls clothing the naked). In the evening she attended a card party (this might possibly be called visiting the sick, as most of them were too sick to attend church the next day). How much moral weight will her Sunday words carry? Not so much as the down on one little thistle seed.

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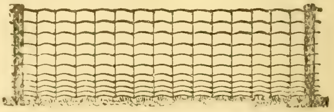

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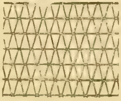

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On and after this date clubbing rates with the *American Bee Journal* and *Bee-Keepers' Review* will be $1.75 for new names and $1.90 for renewals. For example, a subscriber to GLEANINGS, but not a subscriber to the *American Bee Journal* or *Bee-Keepers' Review* may send us $1.75 and receive GLEANINGS and either of the other papers for one year; but if that person is a subscriber to both papers the price will be $1.90.

MINIMUM CHARGE ON FREIGHT SHIPMENT.

The new issue of the Official Classification going into effect this date, and which governs all freight traffic east of Chicago and Mississippi, and north of Ohio River, contains a new rule which will affect all small freight shipments for short distances. Formerly the minimum charge on any shipment, by freight, was 25 cents. This is now changed to read 35 cents. Those who have been getting small shipments through heretofore for 25 cents will hereafter have to pay 35 cents. This should have a tendency to induce customers to send larger orders, or club their orders, so as to make a large enough shipment to get the benefit of the lowest rate available.

HONEY FOR SALE.

We have only a few cases left of 1895 alfalfa extracted, and most of this is in one-gallon square cans, 6 in a case. This we offer at $4.75 per case; 2 case lots or more, at $4.50. There are several cases of two 5-gallon cans, amber color, which we will close out at $7 20 per case.

We have choice new basswood or willow-herb honey in 60-lb. cans, 2 in a case, at 7c per lb.

Buckwheat at 5c per lb. in cans, kegs, or barrels at 4½c.

No. 1 white comb honey, in lots of 100 lbs. and up, at 13c per lb.; buckwheat at 10c; 200-lb. lots of either, 1c per lb. less. Inquiries solicited from those in need of honey.

SMALL WIRE NAILS.

In our last issue we gave the revised price list of standard wire nails. We were not at the time posted on the new prices of fine wire nails. We now give them in the following table:

Cement-coated, except first four.

L'gth.	Wire Gauge.	No. in 1 lb.	Wt. of 5c pkg.	Price of 1 lb.	Price of 10 lbs.	Price of 100 lbs.
¼ in.	No. 21	17,500	2 oz.	.25	$2.00	$17.00
⅜ "	" 20	10,000	2 oz.	.20	1.50	13.00
½ "	" 20	7,500	2 oz.	.15	1.20	11.00
⅝ "	" 19	4,200	4 oz.	.12	1.00	9.00
¾ "	" 18	2,700	4 oz.	.10	.85	7.00
⅞ "	" 18	2,350	4 oz.	.09	.80	6.50
1 "	" 18	2,000	4 oz.	.09	.75	6.00
1¼ "	" 17	1,200	4 oz.	.08	.70	5.50

COMB-FOUNDATION MILLS.

We have the following second-hand foundation-mills, which we offer at the low prices annexed, to close them out.

Six-inch hexagonal, No. 1467. Price $10.00. Suitable for extra thin foundation. In good condition.

Six-inch hex., No. 1461. Price $7.00. This mill has had more use, but will still make good surplus foundation, and is cheap at the price.

Ten-inch round cell, No. TT. Price $10.00. This will make good medium brood foundation, and is in good condition.

Ten-inch, round cell, old style, No. V V. Price $8.00. While this has had very little use, and is practically as good as when first made, it is quite inferior to our present make. For a small amount for home use it will answer nicely.

We have also a number of new 6-inch mills which are not suitable for extra thin, but which will make good surplus foundation; also, by adjustment, they would do fairly well for half sheets of light brood. We offer these to close out, at $10.00 each.

We have also one or two 12-inch round-cell mills for medium brood, which we will sell at $22.50, and one or two 14-inch similar that we offer for $25.00 each. These mills are a bargain to any one who can use this style; shall be pleased to submit samples of the work of any of these machines to any intending purchasers who are interested.

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and protects the scrotum, and should be worn in every case where there is any drooping of the scrotum. It is especially recommended to wheelmen, equestrians, base ball, foot ball, and lawn tennis players, athletes, men doing heavy work, much walking or standing, etc. Ask your physician's advice about wearing a Suspensory—perhaps it will relieve your backache. Our $1.00 grade is very popular, and your dealer, or we, will sell you one and refund money if not perfectly satisfactory. For sale by all druggists and dealers in athletic goods. Send for price list. A. J. WELLS MFG. CO.,
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JNO. NEBEL & SON, High Hill, Mo.

Wants and Exchange Department.

Notices will be inserted under this head at one-half our usual rate. Advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 c. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange one Root's make section-machine (in fine order) for band-saw or offers.
THE GEO. RALL MFG. CO., Galesville, Wis.

WANTED.—To exchange second-hand band instruments, bicycles, etc., for type-writer, comb honey, bee supplies.
P. L. ANDEPSON,
Miller, Nebr.

WANTED.—Canvassers to solicit orders for my permanent crayon portraits. Good wages assured. Write for particulars.
W. A. BALDWIN,
Portrait Artist, Medina, Ohio.

WANTED.—To exchange 60-lb. cans in good order, at 25 cts. each, delivered, for comb or extracted honey at the market price.
B. WALKER, Evart, Mich.

WANTED.—To exchange ten Leghorn fowls (last year's breeding stock), for *bone-mill*, incubator, or offers.
Address J. FERRIS PATTON,
Newtown, Ohio.

WANTED.—A position in apiary. No objections to other work in connection. Age 24; single. Write, one and all. Photo furnished and reference given.
P. W. STAHLMAN, Ringgold, Pa.

LAND—55 acres—on famous Cumberland Plateau. Elevation 2000 ft. *No malaria! No Consumption! Will exchange* for farm machinery, blooded stock, or offers.
PHELPS,
GENESIS, CUMBERLAND CO., TENN.

WANTED.—To exchange Kodak, rifle, or bicycle for foot-power saw, condition no object.
ROBERT B. GEDYE, La Salle, Ill.

WANTED.—To exchange a St. Bernard pup, extra fine, registered blood, for trade or offers. See my ad. in GLEANINGS Dec. 15.
W. S. BRILLHART
Millwood, Knox Co., Ohio.

Our Prices are Worth Looking at!

IN THE

New Champion Chaff Hive Especially.

All other supplies accordingly. Send for catalogue and price list. Address, mentioning GLEANINGS,

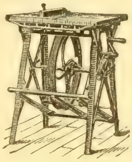
R. H. SCHMIDT, = Box 187, Sheboygan, Wis.

Bee-hives, Sections, & Bee Supplies

AWAY DOWN.

Queens and bees for 1897 at bottom prices. Write for catalogue and prices.

CHAS. H. THIES, Steeleville, Ill.



Read what J. I. PARENT, of Charlton, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby Street, Rockford, Ill.

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Chestnut, Numbo, Spanish, Paragon—four 3-ft. trees, or 12 grapevines—six kinds—by mail, $1.00,
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KIND WORDS FROM OUR CUSTOMERS.

As long as A. I. Root lives, and your humble subscriber lives, you will find my name on your subscription list,
M. A. BELLOWS.
Griffin's Corners, N. Y., Nov. 24.

Tell Dr. Miller, as it is now winter back in Illinois, I think he might lengthen his Straw column, as I enjoy reading Stray Straws very much.
Encinitas, Cal., Dec. 5. J. M. CROW.

Your last shipment of bee-supplies, October 6, is received, and merits praise for its workmanship. All the parts united nicely. I have them all put up and ready for the coming season, with the exception of some painting yet to be done. No mistakes in the parts manufactured so far. How can it be otherwise when "In God we trust" is the motto of The A. I. Root Co?
M. N. SIMON.
Bloomdale, O., Nov. 10.

The watch ($8.85) I ordered from your catalog is at hand, though it must have been delayed, as I was on the point of writing you when it arrived. I have run it a few days, and it is a *dandy*. It is a much handsomer watch than I expected to see; and if, on further trial, it proves to run all right, it is a bargain for that money. Such a watch bought at the store would cost $12.00. I know, for I priced them. I take pleasure in sending a money order for the amount.
F. C. FULLER.
Montague, Mass., Sept. 29.

I have taken your little paper for lo! these many years, and like it much. It is always bright and sparkling, and never dull; and as variety is said to be the spice of life it must therefore be a spicy little journal. In it one may find discussed not only honey but fruit and vegetables; and last, but not least, it sets forth our duty to God as well as man. Well, I was always extremely fond of sandwiches; and what is better than honey, fruit, vegetables, and religion, with "Straws" for toothpicks?
Los Alamos, Cal., Oct. 8. JOEL HILTON.

Our TREES

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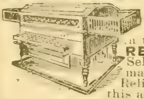

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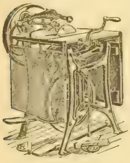

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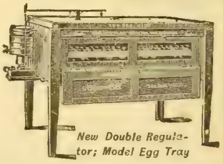
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An honest efficient remedy for all Fevers, Headaches, Colds, Grip, Rheumatism, Neuralgia, etc. A general service remedy that will please you, *or money refunded.*

"They knock headaches clear to the horizon."
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"Too much can not be said in praise of them."
"I was suffering from Neuralgia, and found quick relief."
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1 Box, 25c; 6 Boxes, $1; Samples and Circulars, 5c.

W. B. House, M. D., Detour, Mich.

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Honey Column.

CITY MARKETS.

Springfield. — *Honey.* — Fancy white, 12; No. 1 white, 12; fancy dark, 10; No. 1 dark, 10. Demand fair.
Perkins & Hatch,
Jan. 11. Springfield, Mass.

St. Louis.—*Honey.*—Fancy white, 12½@13; No. 1 white, 11@12; fancy amber, 9½@10; No. 1 amber. 9; fancy dark, 7@8; extracted. white, 5½ in cans; in bbls., 5@5½; amber, 4 in bbls., 5 in cans; dark, 3½@4; beeswax, 23@25½. Stocks of honey not large, but the demand is very light except for low grade. Bakers take it.
Westcott Com. Co.,
Jan. 9. 213 Market St., St. Louis, Mo.

Chicago.—*Honey.*—Fancy white, 13; No. 1 white, 12; fancy amber, 11; fancy dark, 10; No. 1 dark, 9; extracted, white, 6@7; amber, 5@5½; dark, 4@4½; beeswax, 26@27. Demand not very active. Stocks light.
S. T. Fish & Co.,
Jan. 8. 189 South Water St., Chicago, Ill.

Chicago.—*Honey.*— Fancy white, 12@13; No. 1 white, 11; fancy amber, 9@10; No. 1 amber, 8; fancy dark, 8@9; No. 1 dark, 7@8; white extracted, 5@7; amber, 5@6; dark, 4½; beeswax, 26 Comb honey sales are of small volume.
R. A. Burnett & Co.,
Jan. 7. 163 So. Water St., Chicago, Ill.

Detroit.— *Honey.* — No. 1 white, 13@14; fancy amber, 11@12; No. 1 amber, 10@11; fancy dark, 9@10; No. 1 dark, 8@9; white extracted, 5½@6; amber, 5; dark, 4@4½. Beeswax, 25@26.
M. H. Hunt,
Jan. 9. Bell Branch, Mich.

Albany. — *Honey.* — Fancy white, 12@13; No. 1 white, 10@11; fancy dark, 8; No. 1 dark, 7@7½; white extracted, 5@6; dark, 4@4½. There is very little activity in the honey market, and an ample supply of dark comb and white. Fancy white is not plentiful. We expect an improved demand for extracted soon.
Chas. McCulloch & Co.,
Jan. 8. Albany, N. Y.

Milwaukee.—*Honey.*—Fancy white, 13@14; No. 1 white, 12@12½; fancy amber, 10@11; No. 1 amber, 9@10; fancy dark. 7@8; white extracted, 6@7; amber, 5@6; dark, 4@5; beeswax, 23@25. The demand for honey is not very good—sales seem to drag. We reasonably expect larger consumption at this season; hence, think it will come. The supply is very good, quantity and quality. Our quotations represent fairly the market, yet we realize some in order to push off stock and make sales reduce prices. We always try to maintain fair remunerative values.
A. V. Bishop & Co.,
Jan. 7. Milwaukee, Wis.

San Francisco.—*Honey.*—Fancy white, 10@12; No. 1 white, 9@10; fancy amber, 7@8; No. 1 amber, 6@7; fancy dark, 5@6; No. 1 dark, 4@5; white extracted, 5@5½; amber, 4@4½; dark, 3@3½; beeswax, 24@25. Market is quiet, but stocks are not larger than requirements. Beeswax firm, but in poor demand and light supply.
Henry Schacht,
Dec. 27. San Francisco, Cal.

Boston. — *Honey.* — Fancy white, 13; No. 1, 11 12; white extracted, 7@8; amber, 5@6; beeswax, 25. There is a fair demand with a full supply of No. 1 and off grades, but only a fair supply of fancy stock. Beeswax, light supply, and we advise shipments.
E. E. Blake & Co.,
Jan. 7. Boston, Mass.

Cleveland.—*Honey.*—Fancy white, 12@13; No. 1 white, 10@11; fancy dark, 8@9; extracted, white, 6@7; amber, 4@5; beeswax, 22@27 Honey continues to move very slowly Living in hopes it will soon be better.
Williams Bros.,
Jan. 7. 80 & 82 Broadway, Cleveland, O.

Philadelphia.—*Honey.*—Fancy white, 13@14c; No. 1 white, 12@13; fancy amber, 11@12; No 1 amber, 9@10; fancy dark, 8@9; No. 1 dark, 8; white extracted, 6@6½; amber, 5; dark, 4; beeswax, 27. Little more call for comb honey.
Wm. A. Selser,
Jan. 9. No. 10 Vine St., Philadelphia, Pa.

Denver.—*Honey.*—Fancy white, 11; No. 1 white, 10; fancy amber, 9; white extracted, 5@6; beeswax, 25 Our market is still filled with dark and granulated honey, which tends to keep the price and demand down.
R. K. & J. C. Frisbee,
Jan. 9. Denver, Col.

Minneapolis.—*Honey.*—Fancy white, 11@12; No. 1 white, 10@11; fancy amber. 9@10; No. 1 amber, 8@9; fancy dark, 7@8; No. 1 dark, 6@7; white extracted, 6@7; amber, 5@6; dark, 4@5; beeswax, 22@25. There is a ready demand for comb honey, and all sound unbroken lots sell readily on arrival. Extracted is slow, but nominally unchanged.
S. H. Hall & Co.,
Jon. 9. Minneapolis, Minn.

Columbus.—*Honey.*—Fancy white, 13; No. 1 white, 12; fancy amber, 9; fancy dark, 7.
The Columbus Com. & Storage Co.
Jan. 8. 409-413 N. High St , Columbus, O.

Kansas City.—*Honey.*— Fancy white, 13@14; No. 1 white, 12@13; fancy amber, 11@12; No. 1 amber, 10@11; fancy dark, 10; No. 1 dark, 8@9; white extracted, 6; amber, 5@5½; dark, 4@4½; beeswax, 20@22. Sales are slow.
C. C. Clemons & Co.,
Jan. 8. 423 Walnut, Kansas City, Mo.

☞For Sale.—Extracted buckwheat honey, in kegs of 160 lbs., at 4½c per lb.
J. F. Michael,
Greenville, Ohio.

For Sale.—6000 lbs. extracted honey, in new cans and cases, $375.00. Speak quick; who wants it?
Elias Fox, Hillsboro, Wis.

For Sale.—A carload of white extracted honey from basswood and willow-herb in 30-gallon barrels and 60-lb. cans. Purity and safe arrival guaranteed. Price, 6½ cts.; in quantity, 6 cts.
Frank McNay, Mauston, Wis.

For Sale.—Ten barrels good white-clover extracted honey at prices to suit the times. Can put it up in any style of package desired. Write for price, stating quantity wanted. Send stamp for sample.
Emil J. Baxter,
Nauvoo, Hancock Co., Ill.

For Sale.—15 boxes fine heartsease extracted honey. Price per lb., 6c. Also 14 boxes last season's honey at 5c a lb. Boxes have two 60-lb. cans each.
eitf Jno. A. Thornton, Lima, Ill.

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New subscribers are what every journal most earnestly desires. As a matter of course, if the journal is good, most of the old subscribers will stay by it; but to get *new* subscribers, to get the journal into the hands of *new* men, that they in time may thus become old subscribers, is what every journal strives for most earnestly. To this end I make the following offers. For $1.00 I will send the **Bee-keepers' Review** for 1897 (and throw in the December, 1896, number, which is especially good) and the 50-cent book, "Advanced Bee Culture," or, in place of the book, 12 back numbers of the **Review**. For $1.50 I will send the **Review** and a fine, tested, Italian queen—queen to be sent early in the season of 1897. For $2.50, the **Review** and 1000 No. 1 first-class one-piece sections. But, remember, these offers are only to those who are not now subscribers to the **Review**, and as a special inducement for them to try the **Review** at least one year.

W. Z. HUTCHINSON, Flint, Mich.

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Bees by the pound, $1.00; ten or more pounds, 90c each. Untested queens for 1897, $1.00 each in February, March, April, and May; $5.00 for six, or $9.00 per dozen. For larger amounts write for prices. Have your orders booked for your early queens. Safe arrival guaranteed.

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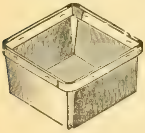

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Wm. A. Selser,
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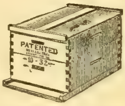

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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

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STRAY STRAWS

FROM DR. C. C. MILLER.

The honey-gem recipe given on page 883 has been tried on a small scale at our house. I don't like it so well as the jumbles—too much taste of molasses.

In reply to your question, Mr. Editor, I don't know of any objection to tall sections aside from not fitting supers; but then, I'm not acquainted with them.

Buckwheat honey, as a food for bees, according to Herr Thiedemann, in *Centralblatt*, helps to prevent foul brood. I wonder if there can be any thing in that

J. B. Kellen, editor *Luxemburg Bienenzeitung*, advises the use of pasteboard floors in hives in winter. Handy to draw out to clean the hive, without disturbance.

The Lehigh Valley is a railroad after A. I. Root's own heart. It not only prohibits the use of intoxicating liquors by employees while on duty, but tobacco also on passenger trains and at stations, and smoking in or about the shops.

Wood stays wouldn't stay in brood-combs for R. M. Reynolds, p. 12. I reported exactly the same experience. Friend Reynolds, please tell us if you ever had any failure with stays boiled in beeswax. With such I've had success so far. But I use only one-fourth as much wood as you.

There is a connection or relation existing between honey and buckwheat that does not occur to most people. The bees gather the honey from the buckwheat blossom, and the nectar is again returned to the buckwheat when it is eaten in the form of cakes.—*Farm Furrows, in Homestead.*

The annual output of honey in Europe is given in *Progres Apicole* as 80,000 tons, worth $11,000,000, with 15,000 tons of wax worth $6,600,000. Seems like a pretty big yield of wax, to get one pound to about five of honey. [These figures may be correct, but the amount of wax seems to be rather larger for this amount of honey. See estimate of the annual product for the United States at the close of this department.—Ed.]

Stop yelling about deep-cell foundation in the way you do on page 6, Mr. Editor, then stopping short just as we're ready for some disclosure. It's aggravating. If you've got scent of any thing worth while, tell. [Just have (*patients*), doctor. That is what a good doctor has, is it not ?—Ed.]

Honey vinegar in 14 weeks. Mr. T. W. Cowan tells in *British Bee Journal* how he makes it. Put in a cask 1½ lbs. honey to ach gallon of water; add vinous ferment or common yeast; set in warm place; two months and three weeks from first mixing, clarify with isinglass, and in two weeks it's ready for market.

The *British Bee Journal* says that the idea that Italians have longer tongues than blacks is now considered a fable, careful measurements showing no difference. [I suspect the *British Bee Journal* is right—at least, I doubt whether any living bee-keeper is any better able to decide this question than its editor, Thos. Wm. Cowan.—Ed.]

Herr Guenther has found, in 50 years' experience, that queens fecundated late in the season prove good layers, while those raised and fecundated early seldom last long. [This is a good point, if true. As long as there is a probability of it, so much is to be gained or lost that it would be a good idea for our American bee-keepers to experiment, and decide the point beyond a question or doubt.—Ed.]

Pres. N. E. France, at the Wisconsin convention, speaking of packages for extracted honey, said, "Some people advocate waxing the barrels to keep them from leaking; but my father says wax the cooper until he can make a barrel that won't leak."—*Amer. Bee Journal.* [Yes, I remember when I called on the Frances the old gentleman was very emphatic in saying that a barrel for honey did not need waxing. Their honey-barrels are made in advance, and stored in a dry room. Just before the honey is put into them, the hoops are driven down solidly. Mr. France assured me that they never had any trouble from leaky barrels.—ED.]

Twenty five cents used to buy a corn-husker. Now the best machine for that purpose costs several hundred dollars. But think of the work it does! It takes the corn—stalks, ears, and all—as fast as two men can feed it, husks out the ears, and loads them on a wagon, then tears the leaves and stalks all to shreds, and carries them upstairs into the barn. And it never grumbles because there's no pie for dinner.

A mistake occurs in that first recipe on p. 23. Instead of 3 lbs. it should be 10 lbs. lard. [Mrs. "Barney" made some most excellent honey-jumbles from the recipe given in GLEANINGS. I am rather of the opinion that the jumbles will be just as good with less lard—certainly much more wholesome. You know lard, or at least the excessive use of it, in cookery, is tabooed now by nearly all the medical fraternity. —ED.]

Honey-jumbles. For the benefit of those who may want to try them on a smaller scale than that given p. 23, here's the recipe: 2 lbs. flour, 1½ oz. lard, 1½ lb. honey, 6 oz. molasses, ⅝ oz. soda, ⅙ oz. salt, 1 gill water, ½ teaspoon vanilla extract. [It would be a good idea for you, doctor, to put all three of these honey-jumble recipes in your honey leaflet, then the family can pick out the size that will best suit its requirements.—ED.]

Ontario bee keepers at their convention raised the question of government's "compelling bee-keepers to put upon the market well-ripened honey." I don't like that sort of compulsion. If I've only enough honey for my own family I don't want to be compelled to put it on the market just because it's well ripened. But if it means I sha'n't sell unripe honey, that's all right. Why not a law against unripe honey just as much as against "unripe" veal?

Failing to find any thing else to fight with you about, Mr. Editor, I arise to continue the quarrel as to the time for development of a queen. Seventeen days is an old belief, and it is known that it is not now true and never was true. Fifteen days is found to be the truth under normal conditions, and is so put down in such reliable books as Cowan's. Now, what business have you to strike an average between that error and that truth, and then say 16 days is about right? [I just won't fight at all—simply give up.—ED.]

R. F. Holtermann, of the *Canadian Bee Journal*, is stirring up things by trying to get Canadian honey on the British market—shrewdly giving members of the Ontario Association some advantage—and by getting a meeting of honey-vinegar makers and consumers at the Toronto convention. [If Mr. Holtermann does not "look a little out" he will be stirring up the wrath of his British cousins. They do not take kindly to the importation of foreign honey into their market. What excites their indignation particularly is that the inferior grades of foreign honey have been sent to England and palmed off as English; but I presume the goods that Mr. Holtermann had in mind were first quality; but by a letter I have received from an eminent bee-keeper in England, it seems to be apparent that little if any thing, from a money standpoint, will be gained by the experiment.—ED.]

Wisconsin reports for 1896 1,800,000 pounds of honey, and 20,000 pounds of beeswax. [These figures seem tremendously large, but they are within the range of possibility, for Wisconsin is certainly one of the very best honey-producing States in the Union. If every State averaged as well as this, then the total amount of honey would be 86,400,000 lbs.; but according to estimate made last fall (see Oct. 1st GLEANINGS), on the number of sections sold in the country, 50,000,000 (for both comb and extracted) would be a nearer figure. If this is correct, then Wisconsin produces $1\frac{8}{10}$ more honey than the *average* of the States. Indeed, there is no doubt there are single counties in Wisconsin that produce more honey than some whole States. But Wisconsin probably does not produce the largest amount of honey. California, by reason of its larger area, longer seasons, and greater variety of honey-producing plants, would run considerably in excess. I believe that somewhere rough estimates have been made as to the annual output for California, but I can not now put my finger on them. Granting it is in the lead, New York and Pennsylvania, and perhaps Illinois and Iowa, will each hold its own alongside of Wisconsin. But there are other States, such as Colorado and Arizona, that are rapidly coming to the front.—ED.]

Please, sir, Mr. Editor, what makes you box my ears for things I never did? On p. 7 you go to arguing about "sunken bottles" and things, and I never said a word about them. Go for Hutch. He's the "sunken bottle" man. Bless your heart! I'm for thin sections just as much as you, I suppose. What I'm fighting is the thievish plan of selling light-weight sections for full pounds. And I say if the grocer sells them that way, why shouldn't he buy them that way? [It is true, doctor, you may not have said any thing regarding the sunken-bottle matter; but what I was "boxing your ears" for was not that, but because you *persist* in saying the plan of selling thin sections is "thievish." I do not believe it is true that consumers have the idea generally that such sections weigh a whole pound; but 10 cts. is a nice even change; and if a section of honey is only

10 cts., people will buy it in preference to one that costs 15 or 18 cts. The dime is usually handy, and it is very easy to throw it out on the counter and walk off with the goods. The point that I think you overlook is this: Consumers are more apt to buy goods in ten-cent packages than in 15 or 25 cent sizes. That is the reason why manufacturers almost universally, where they can, try to put their products in such shape that they will retail for an even dime.—Ed.]

CALIFORNIA ECHOES
By
John H. Martin

Then we have to get news from England about the uses of honey in our own national household.

The new Union evidently has a field here for the exercise of its talents, and a wide field it is, to find out where honey is used, for what purpose, how much, what quality, and at what price; and also where not used, and why.

Please tell Anthony Opp to desist from telling any more bear-hunting stories. They have a demoralizing effect upon Mr. Wilder, my friend and celebrated hunter. We prefer Mr. W. to stay in California; but that story, 18 bears in 20 days, leads him to cast longing eyes toward Arkansas. I have traveled with Mr. W. I know just how he feels—he feels for his rifle.

The fiber of the commom nettle is attracting some attention as a commercial product. Nettle-farming might be a very profitable industry in this State, for they grow to an enormous size, and bees gather a good quality of honey from the blossoms. A nettle-farm and an apiary would work well together, and the bee-keeper would be perfectly at home with the stinging vegetable.

There is much said of late about drawn combs, and I should like to know just what is meant by that term. Must we understand that a drawn comb is drawn to the full depth of the cell, and ready to cap as we find it in an ordinary section? or is a drawn comb merely a piece of foundation started or drawn out half an inch or thereabouts? From my experience I can recognize the value of the latter, but I have never had good results from comb drawn full depth, or from which honey has been extracted. Furthermore, bees will not work upon a section with full-depth cells as readily as they will upon new foundation. The late B. Taylor recognized this fact, and hence the invention of his comb-leveler. Therefore, please state the most profitable depth of cell in drawn combs. [By drawn comb we have meant deep-cell foundation, or comb with cells only ⅜ inch deep. Full-depth combs are not desirable or practicable for comb honey.—Ed.]

Ridge-Pole
Musings

By R. C. Aikin.

ALFALFA-GROWING; ITS VALUE AS HAY; SOIL; IRRIGATION; A VALUABLE ARTICLE.

Since leaving my home at Loveland, Sept. 2, I have traveled through the territory just east of and parallel to the mountains nearly 200 miles. In that distance there is a large per cent of the country unsuited to bee culture because of lack of pasture. All that distance we were crossing the streams from the mountains that supply that district with water. For nearly 200 miles down the Arkansas River there is a strip of country from almost nothing to perhaps 10 or 12 miles wide that is partially irrigated and planted in part to alfalfa. Either side of the Arkansas River for many, many miles out from the irrigated strip, is a large territory covered only by buffalo grass, and would not support bees at all.

About the culture of alfalfa outside the irrigated land, it is somewhat experimental as yet, though it is grown in many places in a small way. I have found it in small fields in Eastern Nebraska and Western Iowa. A few days ago I saw a nice little patch in Page Co., Iowa, that was planted for hog pasture. It looked quite flourishing.

The alfalfa-plant seems quite tender the first few weeks after it comes up, and then is the time it is most likely to be killed. In my own locality they usually plant it in the spring with spring wheat. The wheat does not come off till July, so the plants get quite well rooted by that time, but give no crop that year. The second year it will give two fair cuttings of hay, and the third year three cuttings. I suspect some have become discouraged because it is slow at the start. Do not give up and destroy it the first season unless it is *very* thin. Remember that the roots enlarge for two or three years, and that a two-year-old root will grow two or three times as large a head as a one-year old. Sow it in the spring with grain, and the next year it will begin to "get there."

Perhaps this will seem to many a large amount of space to devote to a description of country, irrigation, and alfalfa culture; but I think when you have read this and what follows, you will feel that it is important enough to find a place in the columns of a bee-journal. There are many apiarists in the alfalfa regions, and nearly every one of them is familiar with honey-plants and conditions outside of alfalfa; but there are thousands who know little or nothing of the alfalfa districts and the habits of the plants. Within the last year or so the bee-journals have reproduced cuts of alfalfa as they appear in Mr. Frank Benton's recent work. These illustrations are good, and I doubt whether they can be much improved. I will now speak of the plant in relation to honey production.

ALFALFA AS A HONEY-PLANT.

I count alfalfa as an unquestionably good honey-plant. I think it will probably not yield as rapidly as many other plants do; but for reasons that will appear later, it is perhaps as much to be depended upon. I have now spent seven seasons in Colorado in the alfalfa districts. In that time I have taken two big crops, one fair crop, and the others poor to very poor. The best crop in the seven years gave a gain per day of about 4 lbs., with the best days only 6 to 8 lbs., and such days *very* few. The average seasons the gain per day has been from 1 to 5, a gain of 4 and 5 lbs. limited to two or three days. In the poor seasons we could hardly get a gain of 4 lbs., the usual run being one to two per day. Why it is that the yield is so slow I do not know; but my observation so far shows that to be a characteristic of the plant. I have never known pollen to be gathered from alfalfa; and when the yield will give a pound and a half per day there is no pollen to speak of carried in from any source.

As explained in the former article, there is but little rainfall in Colorado except in mountions. This naturally gives much clear sunny weather, so that the bees can work almost every day. The nights are cool, as a rule, and possibly this is one reason why the daily gain is light, for the bees do not get out as early as when the nights are warm. There are some conditions under which the plant will not yield, though the bloom be full and apparently healthy and vigorous. The two seasons just passed I thought I should have a good flow, for the bloom was abundant, apparently the best for several years; yet this year (1896) the crop was the lightest in seven years, being almost a complete failure so far as surplus was concerned.

I have noted that some who have patches of alfalfa in the East report that the bees do not work on it. Mr. Hagan, of Rocky Ford, Colo., says his experience is that, on dry ground —that is, unirrigated, and of course suffering for moisture—there is very little nectar gathered. Some others also report no nectar upon non-irrigated land. I can not believe that these adverse reports are at all conclusive. The reports from the East are very limited, and possibly there was other bloom in greater quantity at the time which would naturally take the force. The fact that the non-irrigated fields in the West do not yield would be perfectly natural. We can not and do not expect any plant to yield when not in prime condition.

Irrigation, it seems to me, to some extent overcomes some weather conditions. The natural condition of weather in Colorado would be clear and dry, which would soon result in a complete stoppage of nectar secretion; but to turn on a refreshing stream of water until the moisture permeates the ground and all about the roots, it seems to me ought to produce nectar secretion. Clear, warm, and sunshiny above, and plenty of moisture beneath, is a condition we find present in some degree at all times here. Some water is being applied every day in the honey season, so that *some* fields ought to yield, even though a neighboring field be too dry. So far as I know, irrigated districts never have a complete failure of nectar there being sufficient to give winter stores if no more. I believe that alfalfa would yield in the East, and would be worked by the bees, if it were extensively cultivated. However, it does not seem to be a special favorite with the bees so as to attract them regardless of presence of other bloom. Sweet clover yields both honey and pollen, and is for some reason an especial favorite with the bees. It will be visited when in bloom, no matter what else is open; but alfalfa yields no pollen, and is not particularly attractive to the bees, and consequently does not make a showing when other bloom is more abundant.

As I have previously shown, there is a very large territory in Colorado that does not grow alfalfa. More than this, where it is grown, but a small per cent only gives pasturage. The first hay crop (I speak of the territory north of Denver, more southern latitudes come in earlier) is cut in June, just as the crop begins to bloom. This hay is generally counted on for horse feed, being rather coarse. The second growth is cut just before blooming, or at the very beginning of the bloom, is not quite so coarse as the first growth, and makes good cow hay. The third growth does not usually reach bloom, but is cut at the close of the season, making the finest and most watery or washy hay of the three crops, and is by many counted the best of the three for milk, but entirely too "soft" for work-horses.

In the rotation of crops, alfalfa meadows are broken and planted to wheat. Wheat and alfalfa are the main crops. The thick, tough tap-roots that go straight down into the earth are very hard to cut off; hence in plowing up these meadows so many of the roots slip by the plow, or for some reason grow again, that often a wheat-field will have in it a fair stand of alfalfa. Wheat harvest does not come for a month or more after the alfalfa begins to bloom, thus there is quite a little pasturage for the bees from that source where such fields exist. Here and there will be fields grown for seeds. For a seed crop they prefer a field not too thickly set and not too wet. The scattering plants grow great spreading bushes, as it were, a single plant often occupying a circle of three feet in diameter when not crowded by others. These seed fields will be in bloom from one to two months, like the sweet clover, having both bloom and ripe seed at the same time, though not so much so as the sweet clover.

Now observe the foregoing conditions, and you will see that the simple presence of alfalfa is no guarantee of pasturage. There is always some in fence-corners, on roadsides, ditch-banks, and other out-of-the-way places that *matures* bloom; but aside from this it depends upon the use made of the crop, and whether the farmer is "up with his work" and cuts promptly, what amount of pasturage the bee-keeper gets. So far as I know, the conditions here described are in the main true of alfalfa districts in general, though there may be some conditions that change the details somewhat. The Arkansas Valley is nearly 200 miles further south than Loveland, and has a season almost if not quite a month longer. There is also quite a difference in the soil and water supply. Much more seed is also grown there than in my own territory, hence it is at present a better field *for honey* than my own. Water supply, soil, demand, whether for seed or hay, etc., determine whether seed or hay be grown, and these bear upon the pasturage question.

OUR GRADING-RULES CRITICISED AGAIN.

FOOLISH FADS IN GRADING; SHIPPING-CASES, AND SNOW-WHITE SECTIONS.

By B. J. Thompson.

In GLEANINGS for Oct. 15, pages 758–9, you have a short article on B. Walker's opinion of the rules of grading honey, and call for an expression of the opinion of your readers.

I heartily agree with Mr. Walker in his opinion as stated in that article, that "all of the grades are too strict over unimportant details." In GLEANINGS, Dec. 1, page 864, the editor speaks of the snow-white dress for sections and shipping-cases as a "foolish fad, and the sooner it dies out the better." Now, it seems to me if the demand for snow white sections is a foolish fad, then a set of grading-rules which demand that "both the wood and comb shall be unsoiled by travel stain or otherwise" is a "fad" and a very foolish one at that, and especially so when it is next to impossible to obtain honey that will fill the requirements of those rules.

In all the years of my bee-keeping I can not remember of having any honey that would exactly fill the present rule for "fancy," and very little No. 1; and yet every dealer who has ever handled my honey has given me credit for having as fine lots of honey as he ever handled. (I do not write the above to boast, but to show why I think the present rules of grading too strict and unjust.) If a person can secure a crop of "snow-white" honey, all right; but to make a grade of that kind when such crops are the exception instead of the rule is not just to the large majority of bee-keepers.

White honeys are not all of the same degree of whiteness, if such an expression is allowable; and some seasons the honey can be secured in whiter, nicer shape than others. Both of those factors should enter into the consideration of a set of grading-rules, to be just to all in all parts of the United States.

If sections that are not snow-white are just as good as the snow-white (and I can not see any reason why they are not), what possible harm can there be in having travel or propolis stains on the wood, provided they are properly cleaned? Furthermore, I can see no detriment to the comb being slightly discolored even for fancy grade. The fancy grade calls for "All sections to be well-filled; combs straight, of even thickness." When a section is "well filled, comb straight," I can not see of what use the condition "of an even thickness" is, unless it is a point in favor of those who use separators. (I use 7-to-foot sections without separators.) If a comb is straight, and sections well filled, the condition of "an even thickness" is unnecessary, and only gives the purchaser a chance to be more particular, or find fault if he chooses.

Let us have a careful revision of the grading-rules, and let them be such that they will be a good practical guide to honey-producers. Give us something practical, and that we can use, even if some points have to be left to the decision of honey-producers in various parts of our country. The practical bee-keeper's good common sense will not let him go very far astray.

Waverly, Wis., Dec. 7.

[I believe all that you and friend Walker say is true. Acknowledging, then, that our present rules are faulty, what we need to do is to set them right. I wrote to friend Walker, asking him to submit to us another draft of the same rules, with all the objectionable features eliminated; but he was so crowded with work that he could not get to it. I therefore call upon you, friend T., to take them and redraft them. You have both the experience and ability to do it.

The *scheme* of our present rules is excellent, and all we need to do is to lop off some of the impracticable or impossible requirements. A slight change in the wording here and there will be all that is necessary, in my judgment. I said the *scheme* of the present rules is all right—that is, having several grades, such as "Fancy," Nos. 1, 2, etc., and then designating the source by "White," "Amber," "Dark," etc. Our commission men and bee-keepers have become used to the present rules, and, so far as possible, we should retain these features.—ED.]

FOREIGN BEES.

LITERATURE RELATING TO BEES IN BRAZIL, EAST INDIES, AND AFRICA; GOVERNMENT AID TO BEE-KEEPERS.

By W. K. Morrison.

It seems that many of your readers want to know more about the foreign bees mentioned by me previously, so I shall add a little to what has already been said, to reinforce some of my former statements and show what has so far been discovered. We will start first with South America.

Capt. Hall, in the account of his travels in the southern continent, gives a most minute account of the keeping of stingless bees by the natives; but as this book is easily accessible I will pass it by now. The same may be said of Capt. Beechey. The works of Azara and Geoffrey St. Hilaire are not common, and I have not seen them for some time; but Azara had a good deal to say about the bees of southern South America, and first mentioned the now celebrated honey-gathering wasp. The Europeans said that Azara was either fooling or had been imposed on; but Azara held his ground, saying he was not mistaken. Geoffrey St. Hilaire was able, however, to corroborate all that Azara had said, and there the matter rests. Spix and Martins, the great explorers of Brazil, seem to have come across honey-bees of different sorts. Their book costs so much ($170) that I have been unable to get to see it. Bates, the author of that fine book, "A Naturalist on the Amazon," mentions the fact that he saw a native take two quarts of honey from a nest of *Melipona fasciculata.* He says that the hive consisted of an immense number of individuals. He further says that they work pretty much as ours do, only they seem to use mud instead of propolis. They have no sting, but their bite is nearly as effective in keeping off intruders. The largest size he saw was a little less than our bee. I have tried to get these bees from British Guiana, but without success.

Mr. Paul Marcoy, who has written one of the finest books of travel ever penned, mentions bees. He is an artist, a naturalist, traveler, and ethnologist all in one, and, as might be expected, his book is a model (Blackie & Sons, Edinburgh). Here is what he says:

"Two kinds of wax are collected by these Sensis—a white and a yellow. They have a third kind, black; but as they obtain it by mixing lampblack with the natural varieties, we may pass it by. The white wax is produced by a bee called the *mitzqui*, the yellow by the *yacu.* The first of these hymenoptera is not larger than a small fly; the second is about the size of the common bee. The habits of the two insects are similar. They establish themselves in the hollow interior of cecropias (a tree), which are almost always pierced where the branches spring from the trunk, selecting by preference such of these trees as grow around the lakes of the Ucayali (between Sierra Blanca and Nauta), rather than those on the banks of the great river. This preference is accounted for by the tranquility which they enjoy in the interior of the country, where the waters are rarely furrowed by the canoes of the natives. To possess themselves of the wax and honey of these bees, the Sensis set a light to a pile of green wood around the cecropia, to which they have tracked them, and, after having dispersed, suffocated, or burned the laborers, they fell the tree and appropriate the fruits of their industry."

My own opinion is that the *Melipona* would succeed where moths and ants are troublesome, and it is generally considered that the difference between them and *Apis*, structurally speaking, is very slight. They would seem by all accounts to be good wax makers. I have seen several species, but never a nest of the large kinds. The honey of the small kinds is very good, and most of the bee-hunters of Venezuela prefer it to our own kind.

In regard to the East Indies, we are well off for information. Many travelers have touched the theme. Dr. Alfred R. Wallace, the friend and colaborer of Darwin, has given us a most graphic account of *Apis dorsata*, that leaves little to be desired. You will find it in his well-known book on the Malay Archipelago.

Here is what Forbes says in his "Naturalist's Wanderings" about *Apis dorsata:*

"During the brief twilight, after the sun had disappeared, the air for some twenty minutes was suddenly filled with the hum of bees (*Apis dorsata*) as if a swarm had alighted among the flowers of the gum-trees. Just before daybreak, while it is still dusk, the morning air is in a similar manner inundated with their noisy hum. This singular habit of these bees in feeding in the sunless hour of the morning and evening I was totally unaware of till I came to live at Fatunaba, where, close to our door, a grove of these trees grew. In the evening the *melaleuca* (a fine honey-tree) certainly becomes more fragrant than it is at mid-day; but I could not ascertain what would be very interesting to know, if its flowers exude their nectar or shed their pollen more freely late in the evening and early in the morning."

This query is easy enough to answer. The rays of the tropical sun bear down so directly as to dry the nectar out of the flowers by 10 o'clock A. M. Moreover, there is hardly such a thing as twilight in the tropics, and bees soon get to know that, when the sun goes down, there are only a few minutes left to get their fill and fly home, otherwise they will have to stay out all night, so they troop home just as they do when a shower is coming. Again, during the night the flowers collect more nectar; and as the sun rises all at once, the bees simply "swarm" to their work and "make honey while the sun is obscured by morning mists." That keen observer, Mr. F. W. Burbidge, in his "Gardens of the Sun," gives us a short but excellent account of the apiaries he saw in the East Indies. He says:

"Here at Kian, as at all the Dusan villages along our way, we noticed large quantities of tame or domesticated bees. These are kept in cylindrical hives formed of a hollow tree-trunk, and are placed on a shelf fixed under the overhanging eaves of the houses. In several instances the hives were on shelves inside the houses, a hole being made through the "ataps," corresponding with the hole in the hive, so as to allow egress and ingress—a plan similar to that adopted by the bee-keepers of Kashmir." Who says the house-apiary is something new? It is certain the bees seen by Mr. Burbidge were not *Apis dorsata.* What were they? And yet there is no more wide awake man in the world than the gentleman just mentioned.

Next on our list is Africa, and one quotation will do for this continent. In "Through the Kalahari Desert," by Farini, he has this little narrative:

"'Are you sure, Klas,' said I, 'that it is a bees' nest and not a wasps'?'

"'Yes, Sieur, it is a bees' nest, and there is plenty of honey. I'll show Sieur where it is, and then he can see for himself. We find them in aard-vark holes and clefts of rock in the mountains, the comb quite open, and the bees clustering outside.'"

"This was something so entirely new to me that I made Klas take me next morning to the spot, while the Bushmen organized a bee-hunt. Taking a little water in a broken ostrich-egg-shell they placed it near a bunch of flowers, and watched for the bees coming to drink. The thirsty insects are always on the outlook for water; and as soon as one finds it he quenches his thirst and goes off to call his friends and neighbors to the spot.

"It was not long before first singly and then in twos and threes, and lastly in dozens, the bees came and settled on the top of the eggshell, which one of the Bushmen then took up and held aloft as he slowly followed the direction in which the insects took their flights, the thickest of which the water-bearer followed, while others were told off to track out the others. This was now no very difficult task, for the bees were so thick that their flight could be traced by the sound of their humming.

"At last we came to a wait-a-bit bush, round which clustered myriads of bees, just as if they were 'swarming' there; but the Bushmen said there was a comb inside. They did not take any notice of us; so, after watching them for a bit, I took a bunch of grass and set fire to it, causing a dense smoke to arise under them. This had the desired effect. Those outside became stupefied and fell down, while the others, filling themselves with honey, offered no resistance as I reached carefully into the bush so as to avoid disturbing them, and at the same time to prevent the terrible thorns from tearing my hands. The combs, seven in number, hung crosswise from the branches—the middle ones the longest, and the others growing shorter the nearer they came to the outside. Both comb and honey were as white as snow. It must have been a young swarm, as there were no young bees, and the comb was new, never having had brood in it to discolor it. I gathered up some of the bees and put them in a reed, but, unfortunately, was not able to secure the queen."

Schweinfurth noted that the bees in Central Africa were closely related to the Egyptian race. Slatin Pasha, who has recently escaped from Khartom after ten years' imprisonment, says in his new book, "Fire and Sword in the Soudan," that one of his carriers was killed by bees he attempted to rob. He says the poor fellow died in great agony. I suspect that Africa is the original home of our bees; and, in fact, it is extremely likely, since the modern anthropologists are pretty well agreed that Africa was the home of our race, though we used to be told once that we were Asiatics. Has the bee followed us in all our wanderings?

Now as to government aid to bee-keepers. I for one am not opposed to it; but we must be careful. The hunt for new species alone would furnish a great chance for a number of junketings and also a lot of nonsense. We shall have to get a very much better administration of the Agricultural Department than we have had heretofore; in fact, I distrust their ability altogether. Why is the apicultural division put in with the entomological department? Scientific men generally class bee-keeping as belonging to botany; that is, the fertilization of flowers. The botanist can tell us more news than the entomologist. Hermann Müller and Darwin have placed this beyond the shadow of a doubt. Pasturage is the great problem of the future. But this is another story.

I think if the government were to give the Smithsonian Institute a grant of money for this object for a term of years, it would satisfy everybody, the money to be granted for the express purpose of making experiments on the different species of bees, and their influence on flowers. The Smithsonian could attack this job better than any one else, and, moreover, get the assistance of the whole scientific world. They would be able to see the job from all sides. Still, there would be plenty left for the Agricultural Department to do, such as gathering statistics, getting uniformity among hives, promoting the sale of honey, and so on.

As to getting new bees, the Smithsonian can do it better than any one else, and at less expense. We can keep our weather eye open.

There are many other references on bees in modern books of travel; in fact, some just published mention them, like Lawrence's Kashmir, where the bee-men know enough to feed millet meal for pollen, and keep the hives inside; but enough has been noted to show how matters stand.

Devonshire, Bermuda.

DEFUNCT BEE-JOURNALS.

THE FIELD OF BEE JOURNALISM IN GENERAL; IS IT A BAD POLICY WITH THE OLD RELIABLES TO BOOST ALONG NEW RIVALS?

By Dr. C. C. Miller.

Some time ago a friend of C. J. H. Gravenhorst, the able editor of the German illustrated bee-journal, applied to the latter for a list—for what purpose I don't know—of bee-journals that had started and had ceased to be published. After making up a rather long list of such journals that had lived and died across the water, Mr. Gravenhorst referred to me to give a list of such American journals. I in turn asked help of the inhabitants of Medina, and it has occurred to me that it might not be a bad thing to make some sort of permanent record of this list before some of the names are entirely forgotten, and possibly the few not here given may have their names supplied by some one else. Here is the list, so far as I can give it:

	Began.	Discontin'd.
Bee-keepers' Magazine,	1873	1889
Moon's Bee World,	1873	1877
Bee-keepers' Guide,	1876	1890
Bee keepers' Exchange,	1879	1883
Western Honey-bee,	1879	1880
American Apiculturist,	1883	1895
New England Apiarian,	1883	1884
Kansas Bee Journal,	1884	1885
Bee-keepers' Advance,	1889	——
The Bee-hive,	1893	1893
National Bee Journal,	——	——
Canadian Honey Producer,	——	——
The Queen,	——	——
California Apiculturist.	——	——

The above list of the dead considerably outnumbers the list of the living. Old age was not the cause of death, the oldest being the first on the list, and that died when only "sweet sixteen," while GLEANINGS shows no signs of decrepitude as it enters its 25th year; and the only older one, first-born of all, the *American Bee Journal*, which first saw the light in 1861, 36 years ago, was never in so full vigor as now.

Bee-keepers are likely to be enthusiasts, and once in so often enthusiasm leads to mania. Sometimes it's a mania for invention. Indeed, like the chickenpox and measles, every bee-keeper must go through a more or less severe siege of this mania for invention. Possibly there's a defect somewhere in the make-up of a bee-keeper who never thought *he* could invent a hive. Then there's the mania for entering the list of supply-manufacturers and queen-breeders. For a considerable time I have been conducting a department in the *American Bee Journal* in which I attempt to answer all sorts of questions about bee-keeping, and you would be surprised to know how often it happens that questions of the most elementary character, showing that the man has neither knowledge nor experience, come from one whose card on his envelope proclaims him "Breeder of Choice Italian Queens." Not long ago I had a letter reading somewhat after this fashion: "I began this year for the first time with 6 colonies, and increased to 16. Next year I intend to increase to 75, and to go into the business of queen-rearing." He may not get his 75; but the probability is that the list of queen-breeders will be increased by one more. But what kind of queens?

The mania for publishing a bee-journal comes later in the life of a bee-keeper, is not so widely spread as other kinds of mania, but more disastrous in results. The victim is cured of his infatuation only at the expense of a goodly number of dollars, belonging either to himself or to some one else. It seems a little strange that men of bright parts and apparently good judgment should be deceived into making a losing venture in plain view of the wrecks of the majority that have preceded him. Probably the allurements are not the same in all cases. In many cases a new journal is started because of apparent local needs. The bee-journals already in existence fail to fit the needs of the county in which I live, in some particulars. What's the use of occupying space with talk about sage and alfalfa honey, when there's nothing of the kind within hundreds of miles? So it will be the wise thing to have a McHenry Co. Bee Journal, in which the wants and needs of McHenry Co., and of McHenry Co. alone, shall be considered. But when I come to start the paper, which at the utmost could have only 500 to support it, and get only 100 of the number as actual subscribers, the thing begins to look different. True, I had all sorts of encouragements from every one whom I consulted. "Just the thing, and you're the man to take hold of it." Why couldn't some have the courage, the true kindness, to say to me, "The field's already overworked. Others have lost time and money by it, and the chances are greatly against your success"? It might be a good thing for the bee-keepers of Ohio if they could have an able journal devoted entirely to the interests of their own State; but the field is so limited that Ohio bee-keepers will do better to join hands with Alabama, California, and other States, in supporting one or more journals of more general character.

In some cases a bee-journal comes to the birth, not because of a crying need for it, but because the would-be editor recognizes in himself a born fitness for editorship such as doesn't yet exist. There is a lack in bee-literature. The bee-journals already published are not what they ought to be. He will give the fraternity just what they need, something progressive, and not keep thrashing over old straw from which the grain was winnowed years ago. But after he has fairly launched on the sea of journalism, it begins to dawn on him that, in spite of his great talent and peculiar fitness, bee-keepers can not be made to see it in the same light, and will still persist in being satisfied with the old standbys. Subscriptions do not pour in as he anticipated; and as something more than two or three hundred subscribers is needed to pay for setting the type, to say nothing of ink and paper, there's nothing left to pay for editorial labor; so, after the struggle of a few months or years, the project is given up, and the brilliant journalistic talents allowed to rust because their owner was born in an unappreciative age.

Bee-journals already established are themselves to blame somewhat for some of the disappointment and loss resulting to those who never should have entered the field. Not to appear underhanded in my accusations, I will arraign GLEANINGS on this charge. Now stand up in a straight row, Mr. Editor, listen to my charge, and see if I don't tell the truth. There comes the initial number of *The Front Rank Bee-keeper*, and you feel that you must give it a free advertisement. If you don't, the publisher feels defrauded of his natural and inalienable rights, and does not hesitate to mention in print the mean spirit you have shown. Now, what kind of business policy is that on either side? Suppose Smith starts a store in a new place where Jones has been for years the leading merchant. Jones rushes to the newspaper office and pays for the "ad" that Smith has had inserted. Some might praise Jones for his courtesy, but more likely he'll be called a fool. Merchants don't do business in that way. Is there any reason why the code that prevails among rival merchants should not prevail among rival papers?

You may say that, whether the code should be the same or not, the fact is that it is *not* the same, and that it is only newspaper courtesy to make kindly mention of a rival enterprise; at least, if it is not common courtesy it is sometimes done, and it's an act of kindness to mention favorably the new candidate for public favor. I beg pardon, it *isn't* kindness; at least, it generally isn't. In your heart you know there isn't one chance in ten, if in a hundred, that the venture will be profitable, and the sooner the publication stops the less will be the loss. But your words of commendation — and you try to commend all you can without lying — help to keep up hope; for if an old journalist approves, there is certainly no reason for discouragement. Then, too, your mention makes more or less call for sample copies, and possibly a few subscriptions are sent in just on the strength of your recommendation. So you have helped to keep up the delusion just a little longer, and what good have you done? — merely helped to prolong the agony in a case where you were almost sure death must inevitably come. Better let your silence help to kill it the sooner, and thus end its misery.

Marengo, Ill.

[When you asked me to furnish you a list of the bee-papers that had once lived and died, I thought perhaps half a dozen would very nearly cover the number; but when I came to look over our back volumes, representing all the bee-papers, both living and dead, I was surprised that the list should be so large. Surely, in the bee-journal line also the dead greatly outnumber the living.

There were some bright progressive men who were at the editorial helm of some of these bee-papers — men, too, of experience in the publishing business. If *they* have made a failure of it, those with no experience who are contemplating embarking in such a doubtful enterprise would do well to pause long enough to never embark.

With all the experience the editors of the old existing bee-journals have had, it is doubtful whether, if they were to sever their connection with their papers, they would be able to start another bee-paper that would live and pay expenses. The fact of the matter is, the old reliables have come to be so thoroughly intrenched that the new rivals have almost no chance whatever—at least, that list of the dead as compared with the living seems to look decidedly that way.

The trouble is, the number of bee-keepers in the country is comparatively small; and among that list the number who take a bee-journal or bee-journals is smaller still. We have on our books something like 100,000 names of *bona-fide* bee-keepers. Of this number, not over 12,000 take any bee-paper. As a general rule, one or two bee-journals seem to be all that they will take. What show is there, then, for a new candidate, without experience, without much capital, without the coterie of experienced writers, to go in and divide that patronage, especially when the price charged is often equal to that asked by the stand-by existing journals?

In saying this I am not trying to throw bricks at new bee-papers over the shoulder of Dr. Miller; neither am I afraid they will cut down our patronage, for they have not. Indeed, our circulation, until these hard times came on, kept right on at its old pace the same as *before* the rivals were in the field; and even now it reaches very close on to 8500.

Well, doctor, since you have asked me to stand up in a straight row I shall have to confess that, when GLEANINGS has acknowledged the arrival of a new rival, it has done so purely out of editorial courtesy, and because it would have looked mean, as you intimate, to ignore its appearance upon the field; but I believe, as you say, that it is not courtesy nor a kindness. For instance, suppose that the old established journals had refused to recognize the initial numbers of many of the above defunct list; the probabilities are they would have died sooner, and thus saved their publishers a considerable amount of money. Whether those same publishers would have appreciated that at the beginning is very doubtful; but if living now, I am sure they will realize the truth of it as they never saw it before.

WOLVES AND WILDCATS.

SOME "LIVELY" EXPERIENCES.

By E. France.

Forty-one years ago this winter I went from the State of New York to live in Iowa. I was then 32 years old. I settled on the east bank of the DesMoines River, 27 miles above Ft. Dodge. There were very few settlers there at that time. I took up a quarter-section of government land, built a log house, and worked on the farm summers and trapped winters. Wild animals were plentiful there at that time.

The first and second year that I was there we had very hard winters—cold, and deep snows. The wolves hovered around the settlements in hopes to get something to eat. I would see them almost every day—single, or two or more together. At one time I saw 13 in a drove. At another time I wounded a deer just at dusk, but did not get it that night. I went the next morning to find it. I found its bones, but all the meat was gone. Away from the bones ran a troop of wolves and foxes. They ran across the narrow river bottom and up on the grassy bluff, then stopped to look. I counted 32 wolves and a few foxes, so you see there were plenty of wolves in the country. Were they dangerous to human life? Not much danger from a single one; but when in packs they were a litttle risky.

There were five persons killed by them in Iowa in the winter of 1856. But the trappers soon thinned them out.

The second winter that I was there I got a little scared one night when I was trapping up a creek near my place. I would go up as far as I could, and get home in one day. I wanted to go farther up the creek, so I took some bedquilts and something to eat, intending to go up as far as I could, stay over night, and come back the next day. I went up about 15 miles. The upper part of the creek was all prairie. After I got above where I had trapped I found a large beaver settlement among the ponds. There were three quite large willow-trees, about 25 feet high. I thought that would be a good place to camp near those trees. In case the wolves got after me in the night I could climb the trees. But I had a few traps yet not set, and I wanted to see more of the creek further up; so I went on up five miles further, and got all of my traps set. Then by the side of a beaver-pond, in a little clump of small willows, I fixed my camp. I cut with my knife a large bunch of dry grass for my bed, wrapped my blankets about me and lay down to sleep, and was soon dreaming about wolves gathering to devour me. I woke up, and, sure enough, the wolves were howling in every direction. I was sorry that I had not stopped down by those three willow-trees. In fact, I was quite uneasy. But I could not reach the trees now, and made up my mind to stand my ground. This was in November. The ponds were not frozen over, and the grass was not burned off. I had no gun, but had a good hatchet and knife, and a big dog. I could set the dry grass afire if I must, but did not want to if I could help it. The wolves came nearer, and appeared to be more of them. The dog growled and barked. Pretty soon the wolves stopped howling. Were they sneaking in on me, or had they given up the job? I lay there. The moon came up. The dog went to sleep, and so did I. I heard no more of the wolves. I got up at daybreak, ate my breakfast, and started down the creek to see my traps. The first trap I came to, set for a mink, baited with beaver-meat, had a wolf in it. I skinned it, and skinned three more near there. I have thought, since then, those four wolves getting trapped that night saved me, or, at least, saved me a fight with them. I stayed in my camp there several nights after that, but was not disturbed again.

The next winter I trapped on the same creek again, but had a horse to ride, and many a chase I had that winter after wolves on the prairie—not much snow. My dog was a large half-breed grayhound, and liked the sport as well as I did. The horse was a good runner, and liked the fun too. The wolves would be lying in bunches of unburned grass; and when I came near they would start out, then here we would go. I seldom ran over a mile—usually not over half a mile. The dog would stop the wolf and fight him. I would come up soon, and with my hatchet finish the wolf, skin it, and then go on. Sometimes the horse would see the wolf first. He would then jump ahead so suddenly that I would be thrown back behind the saddle; and once I remember I went clear back over the horse's tail on to the ground. I alighted on my feet, but was soon in the saddle again in full chase after the wolf.

I will tell you a little laughable story of a wildcat capture. I was trapping on the Little Sioux River in the winter time, in company with a young man. We had caught several cats in our traps. One day, after a little fall of snow, we were walking up the river on the ice. We saw a cat's track going up the river, and we followed it. It went straight up the steep bank of the river, and went into a hole under a cottonwood-tree. As I had a trap with me I went up to the hole to set it to catch the cat when it came out. I had my gun in my hands, and I poked the muzzle into the hole, and put my head partly into the hole to see what I could see in there. It so happened that the hole went back only about six feet. The cat was back in the further end. It being dark in there, or may be I was snow-blind, I did not see the cat at first; but soon my eyes began to see, and just then I saw two bright eyes, and heard a deep growl. I knew the cat was coming out, and there was hardly room for it to pass my head. I had my right hand on the gun-lock. I raised my head and gave the cat a "snap shot." The ball struck it in the breast and killed it. But in her spring to get out she landed on my left shoulder, bleeding like a stuck hog. My dog, always at my heels, bounded up and grasped the cat, and also got my coat-collar in his mouth. Being a heavy dog, and stout, he took cat and hunter down the steep bank on to the ice, and tore half my coat off. There we were, hunter and dog, cat and gun, all whirling around in the light snow. The blood from the cat was all over in the fresh snow. My partner was terribly scared. He got hold of me as soon as he could, and helped me up. He did not stop to see that the cat was dead. He thought I had shot myself, or that the cat had hurt me. He thought all the blood was coming from me. I just looked and laughed, and examined myself, and found that I was not hurt.

"Well," said my partner, "if that is the way to capture wildcats, you can have all the fun to yourself. I don't want any."

The wild cat is a pretty savage chap if you get it cornered, but usually very shy, and will keep out of your sight if it can. If caught in a trap it is ready to fight if you give it a chance. Walk up to one in a trap, and it will come toward you as far as the trap-chain will reach, and stand ready to fight, and growl like a big dog. I take my hatchet in hand, go up as near as I can and be out of reach of its paws, then make a few false blows near it, with the hatchet, as soon as it will let you do that without striking back at you, then reach a little further, and hit it on the head. It is not hard to kill. A quite small blow will drop him.

I once saw one that was tamed. It was taken when very young. It was four years old when I saw it. It was a great pet, and appeared to be as safe a playfellow as any other cat. There was a four-year-old boy in the family, and boy and cat were great friends, and played together, rolling and tumbling about the floor, sometimes the boy on top and sometimes the cat. The boy would pull the cat's legs, and get his hands in its mouth, but the cat did not bite or scratch him. But let a strange dog come around the house, and the cat would bounce on to him and comb his hide in good shape. Very few dogs can whip a wildcat.

My story is getting almost too long. I was intending to write up some of my adventures with wolves in Wisconsin, but will leave that for another chapter.

Platteville, Wis.

[Some time ago our friend Mr. France wrote us, asking if a wolf-story or two, drawn from his own experience, would be acceptable for GLEANINGS. I replied that it would, that variety was the spice of life. He is one of the old pioneers, and one at whose feet it is a pleasure to sit and listen. As I know by experience when I visited him, he is full of the experiences of pioneer days; and if what he says does not relate to bee-*keeping*, it is a bee-*keeper* of no mean order who is telling the story. If our readers do not like such "diversions" let them speak out.—ED.]

A NEW SYSTEM OF TAKING COMB HONEY.

HOW TO GET THE BEES TO FILL THE OUTSIDE SECTIONS AS QUICKLY AND AS NICELY AS THOSE IN THE CENTER OF THE SUPER; A VALUABLE ARTICLE.

By S. T. Pettit.

Doubtless all close-observing comb-honey producers have noticed that the bees generally commence work at or near the center of the super, and that the work extends outward, the front generally being reached and finished first. From this we can readily understand that, while the center and front sections are ready to receive another super under them, they must wait until more work is done upon the side and back sections.

Now, as the bees come in they generally go up somewhere near the center; and as they find the sections advanced well nigh to completion, the honey must go beyond. Bees pass slowly and reluctantly over well-filled combs or capped honey in search of store room. It is obvious that this causes delay and loss of time, and is a strain upon their energy and industry. In course of time another super is given, and a similar process, though in a less marked degree, is repeated.

If by some simple means not distasteful to the bees we can cause them, as they come in from the fields, to separate and distribute themselves to the sides and back end of the super, work at these points will generally commence and keep pace with the work at the center.

Right here I may be allowed to say that my new system accomplishes this desirable feature most admirably, and I will now proceed to give it.

I get out two wedge-shaped pieces of pine or basswood for each hive I expect to use during the season. These are one inch square at one end and one inch wide at the other end, which is brought down to a feather edge, and of the same length as that of the hive. Now, when the bees begin to suffer with heat and for want of more air, with a suitable lever, after giving the bees a whiff or two of smoke, I pry up the front of the hive and slip under each side of it one of these wedges; this gives an entrance 1⅜ inches by the width of the hive. This large entrance and elevated hive, by supplying lots of air and ample roominess, comforts the bees and retards swarming.

But the *particular point* to which I desire to draw attention, consists in the trick played upon the bees, which causes them to distribute themselves to the sides and back end of the super. For a short time after raising the front end of the hive, the bees, as they come from the fields, will seem a little confused when they find the bottom-bars out of reach; but they will soon find a new way up, some going to the right and some to the left, going up the sides of the hive instead of the middle, as formerly. The wedges close the openings and form continuous passages up, and some will march right along toward the back end until they can reach the bottom-bars. This places the bees with their loads just where wanted. Now see—this is all quite simple, and not at all objectionable to the bees.

Permit me to say I have carefully watched the process of comb building and filling under this system; and in some cases, though they are the exceptions, I have found the outside sections rather ahead of those near or at the center—one very important point gained.

But there is yet another new and valuable feature to be described. First, however, allow me to say that we have often, to our sorrow, found that the outsides of the outside sections, though fairly well filled, are, at least a good many of them, but poorly capped. This has often been a sore trial—so many poorly finished sections after looking so repeatedly and waiting so long.

It always seemed to me that, if more room could be furnished, more bees could be present, and thus a more uniform and the necessary heat kept up day and night at the outside of the outside sections; then the bees would feel and act like those farther inside, and would go on and finish up the job "in a workmanlike manner." But the difficulty would always come up that, if more space was given, it would only be filled with honey in poor shape.

At length I conceived the idea of giving two bee-spaces by putting in a divider to divide the extra space into two bee-spaces. Following up the idea I set myself at experimenting to test what seemed to me so full of promise. After experimenting with a good many different devices with more or less success, I tried the one which is here described, and it has given very good satisfaction indeed.

It is simply as follows: A piece of basswood or pine, about a sixth of an inch thick, and just the width and length of a separator, is bored as full of $\frac{5}{16}$-inch holes as the wood will stand and not split to pieces, and five ¼ inch strips are nailed across it. These are turned outside against the wall of the super, thus forming two bee-spaces instead of one. The bees cluster on both sides of the divider, and pass freely both ways through the holes, and the work goes right along in good shape.

I tried a few with ⅜-inch holes, with satisfactory results.

Notes.—Nothing is gained by giving more than two bee-spaces.

Dividers made of slats ¼ inch apart leave the sections ridgy, reminding one of a miniature washboard, and, besides that, some brace-combs appear between the sections and divider.

I coined the word "divider," or, rather, applied it to the new device. I hope it will do. This system is applicable to all kinds of hives, and the cost is a mere trifle only. I have no supplies for sale, nor have I any interest in that line of business. Free to all.

Belmont, Ont., Dec. 26.

[Mr. Francis Danzenbaker has for several years advocated the use of deep entrances in the production of comb honey, and accordingly on all his hives he has what he calls his reversible bottom-board, one side of which has raised a rim making a ⅜-inch space, and on the other side a deep rim, making a 1-inch space. In hiving swarms, or in the production of comb honey, he uses this deep space; but his argument has been that it forces the bees to get their honey away from their entrances, where it is cold, up into the top of the hive or super, where it is warm. I believe he never claimed for it, however, that it resulted in the equal distribution of comb-building and comb-filling. As I understand it, your long wedges accomplish practically the same results as Mr. Danzenbaker's reversible bottom-board, only that he has a space of equal depth under the frames from front to rear. I hope others will report upon this during the coming season, and give us the result of their findings.—ED.]

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

WINTERING BEES IN A BEE-HOUSE.

Question.—Would bees winter safely in a house built for them, where the temperature might be nearly as low inside the house as outside, providing it were so constructed that each colony would be inclosed in chaff packing, the same as in a chaff hive, with arrangements to close the outside entrances on the approach of cold weather, and give them ventilation from the inside, where the wind can not blow in upon the bees?

Answer.—It would be hard to tell for a certainty about this matter, without having tried it for a term of years. Bees often winter well with protection, and sometimes equally well without it. They are lost, too, under precisely the same circumstances. Low temperature is the demon which slays our bees more surely than any thing else in winter. If we had warm weather all the year round, here at the North, our wintering troubles would be at an end. Whether protecting each hive separately would overcome the trouble, which is almost sure to result where bees are kept in a continued low temperature, as they must be by such a plan as is proposed, is somewhat doubtful. Theoretically it looks all right; but so far as my knowledge goes, and from what I have gathered from others, such a mode of wintering has never been made a success. I am of the opinion that the bees would winter much more successfully if left out where the snow could come up about the hives so as to partially cover them, and where the sun could shine on them whenever it is not obscured by clouds. My advice would be, not to put bees inside a cold repository; but if you do, keep its temperature up to from 42 to 48°, or leave them out to get the advantage of outdoor wintering. As a general thing it is best to adopt the method that has most generally proven safe with the main part of our bees, and stick to it. If we are not fully satisfied with this, then set apart a certain portion of the apiary for experimental purposes, till by experiments we have proven what is best for us in our locality, when we can then serve the whole apiary according to the successful plan, without danger of losing all our bees on some untried venture.

HOLES THROUGH COMBS.

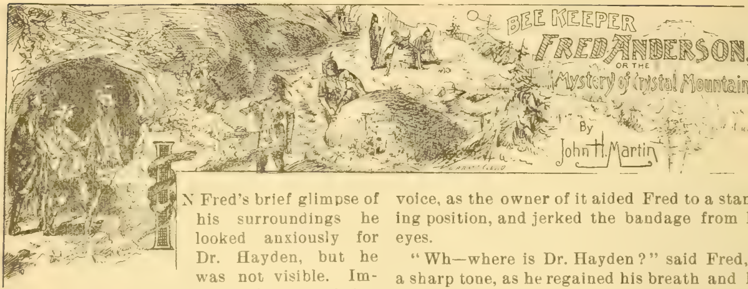
Question.—Do bees ever freeze? I find little clusters of bees away from the main cluster, in my hives, dead, and a neighbor tells me that they were frozen to death. He also says that, if I will make holes through the center of the combs in the fall, it will obviate this trouble. Is he right?

Answer.—In reply to this let me give a little of my experience and observation during the past quarter of a century. As fall approaches, if we minutely examine a colony of bees we shall find that the activity manifested during the spring and summer, in the interior of the hive, becomes less and less, so that, by the middle of October, in this latitude, all brood-rearing has ceased, and the bees have become partially dormant; still, so far they have not packed themselves away in a snug cluster, or compact shape, for winter. Every opportunity given by a warm day is improved to void the fæces, so the bees may be prepared for a long cold spell when such occurs. As the weather grows colder, the bees contract their cluster, many packing themselves away in the cells till the smallest possible space is occupied by them, and thus the requisite warmth is secured to keep them alive when the mercury sinks below zero. In this contraction of bees (at certain times) many of them are left singly, or in little clusters of from five to fifty, which do not recede with the main cluster, and thus are chilled where they are; and if the weather becomes cold enough they may be frozen, thus losing to the cluster that number of bees.

The reason formerly given for this was that, owing to the movable frames, no cross-sticks were used, as was the case with box hives, and hence the bees left no holes in the center of the combs as they did around the cross-sticks, thus compelling the bees to pass over and around combs of cold honey to keep pace with the receding cluster, instead of passing through the center of the combs to the next range, which was more nearly filled with bees. In thus passing around, many became stiffened and were caught by the cold, which might have been saved if the holes had been provided in the center of the combs for them to pass through. To this end the Langstroth frame and others were provided with a shaving, bent to form a circle an inch in diameter, which was suspended from the top-bar by means of a little strip of tin, supposing that this would effectually secure a passageway for the bees. However, but a short time elapsed before it became apparent that, during a good yield of honey, this shaving would be filled with comb and honey, and hence the passageway was cut off.

Next, the practice of cutting holes through the combs, each fall, by various means, was resorted to, only to be filled up the following summer, when, as winter approached, the process had to be repeated. After trying all of these plans it became apparent to me that the reason assigned as the cause of the death of the bees was not the real trouble, for bees would stay and die within half an inch of these holes, when it would appear they could have passed through these passages just as well as not. I also discovered that, when the weather was cloudy, cool, and rainy for several weeks before it became severely cold, this loss was apparently much greater than when a clear warm day occurred immediately before a severe cold spell. By the number of bees that were found on boards and such places, dull and stupid after such a fine day, I concluded that these were the same bees that would have died by not following the cluster, had not a warm day occurred for them to leave the hive to die; hence, I say that the loss was apparently greater when no such day occurred, for many more bees were seen outside the cluster dead, as they had no chance to go out of the hive to die. From years of experience in this matter, I see no reason for changing the conclusion thus formed.

After the bees once get thoroughly clustered, I do not see this loss occurring to any such extent after a warm spell, and but little after a mild fall as the past has been. After being fully settled for winter, and this loss of old bees has passed away, a colony will lose but few bees for six weeks or two months, and will remain quiet. If at this time a warm day occurs so they can fly freely they again cluster back quietly and remain so about the same length of time, when they again desire to fly; and if such a chance occurs all will go well, and the bees will winter well. Thus we have a colony in a normal condition, and all the cold ever obtained in any portion of the world where bees can be kept with profit (occurring during this period between their flights) will not freeze or materially injure them if they have plenty of good stores within easy access.



BEE KEEPER FRED ANDERSON, OR THE Mystery of Crystal Mountain.

By John H. Martin

IN Fred's brief glimpse of his surroundings he looked anxiously for Dr. Hayden, but he was not visible. Immediately upon being blindfolded he was taken between two stalwart Indians and started toward the fire. Fred began to have some doubts about the doctor's sincerity, and for a moment thought he was to be burned and tortured in true Indian style. He remembered, however, that he had told the doctor that he felt equal to any emergency, and remembered the doctor's cordial indorsement of it, and he took courage. Instead of being led into the flames he was led past them, and soon knew from the confined air and echoing sounds that they were in a cave or subterranean passage.

The Indians commenced a low chant, and at the same moment Fred caught a low murmur, evidently from a distance. At first it sounded like the rustling of dead leaves in the wind. As they marched it grew louder until it sounded now overhead, now at one side, and then the other side; and Fred, forgetting himself, shouted, "That's a swarm of bees," and assayed to pull the bandage from his eyes; but strong hands held him. His senses were all alert now, and, feeling that no injury had come to him thus far, he quietly submitted to the ceremony, and thought that, if he was in a place where bees swarmed in the night, he could indeed endure any thing to be introduced into such a place.

The march continued, and soon the swarming sounds were left behind, and became fainter, and finally died out altogether. While his thoughts were dwelling upon the reality of the swarming sound he sensed the approach to open air again; but before he could fairly realize that fact, he was suddenly backed against an obstruction that sent his feet into the air, and an instant after it seemed that he was falling head first into space. But, no! there was something under him. He was sliding swiftly down a smooth trough-like surface; and before he could realize much, his position had changed; his head was up now; next he was standing on his feet.

"Hah, hah! by golly I bet you's scart. I bet you nebber rode dat way befo', and nebber want to ride dat way agin. Ain't dat so?" said a voice, as the owner of it aided Fred to a standing position, and jerked the bandage from his eyes.

"Wh—where is Dr. Hayden?" said Fred, in a sharp tone, as he regained his breath and his senses, and saw before him a happy negro.

"Dr. Hayden? Dr. Hayden? don't know de man; 'spect you must hab taken de wrong road —ha, ha, ha! But I 'spect you want to see medical man Neo-a-ho-a—medical man am all right; want to see de gemman?"

"Yes, I do," exclaimed Fred. "I shall call him to account for my treatment for the past few hours."

"Ha, ha, ha! well, now, dat's a good joke—call de medical man to 'count! Ha, ha! call him to 'count when he's all 'count and you's no 'count; but, see here, my honey; befo' we argufy any further we want to start dis business right. 'Low me to introduce myself. My name is Samuel Johnsing. I'm called Sam for short."

Fred looked at the negro before him, and saw a young fellow who was thoroughly permeated with happiness. It shone out of every feature.

"Well, you are a happy fellow," was Fred's involuntary exclamation.

"For gracious, of course I is; what ye spose I's here for, any way? and, Mr.—Mr.—my name is Samuel Johnsing, Sam for short."

"Excuse me, Mr. Johnson; my name is Fred Anderson;" and they shook hands.

"Fred for short, I 'spect," said Sam.

"You have it," replied Fred; "but I want to see the doctor."

"Now, Mr. Fred," said Sam, familiarly, "de medical man am in his cabin, and don't 'low to be disturbed till mornin'. I 'spect you's tired too. I know from 'sperience dis inishatin' into de happy valley am very 'zaustin'. Oh! no, no; you don't need de medical man. You need rest. Come dis way an' I'll show you de camp dat'll be your home;" and Sam led the way, humming a lively air.

"I declare, Sam, you are happy, and I begin to feel happy myself. Does this valley make everybody so happy?" said Fred.

"I d'know how it'll 'gree with you; but I's always happy; 'spect I's built dat way. Don't cost no mo' to be happy dan to be sad; no mo' to be sweet dan to be sour; and don't cost so much to smile as to cry. De good book say, 'joy cometh in de mornin',' an' I's one ob dat kind what wants to make it mornin' all de time."

"That is a good way to live, Sam; and if everybody would only strive to live that way, what a sweet happy world this would be!"

"Dat am 'zactly so; but he'h we are, Mister Fred; he'as de cottage."

"Cottage! why, Sam, that s nothing but a clump of bushes."

"Wy, jes see he'h, Mr. Fred; it's a little dark yet, an' you don't seem to 'preciate de situashun. Step right aroun' he'h to de do'. Now take off de hat an' walk in. Dar, now, who wants any thing better'n dat?"

"Well, this is a novel affair," said Fred, as he examined his cabin. It was a natural growth. A circle about fifteen feet in diameter had been planted to cypress-trees, the tops all inclined inward. When the trees had all grown to the height of fifteen feet the tops and sides became solidly interwoven; then the clipping-shears had been used to give the exterior and interior a hedge finish, and to cut an opening for a door.

"Plenty of fresh air in this thing," said Fred, as he saw the glimmer of the moon through the foliage.

"Fo' gracious, dat ain't fresh air, dat's climate—pure California climate; you'll jes feel like a cherub he'h."

"And here is my cot and other traps," said Fred, "and I'd like to know how they got in here so quickly."

"Oh! I 'spect de boys sent 'em down de elevator."

"There's an elevator, then. Well, now, why wasn't I sent down the elevator?"

"Ha, ha! dat wouldn't a been inishatin'. You'd a' forgot all about comin' in; but now your comin' in is pressed upon your mind delibly, and now you'll be comin' in dat way of your own 'cord."

"Not if I know myself," said Fred. "Do you think I want to try falling in here head first again? Not I."

"Wy! we do it jes dat way w'en we're in a hurry to get down."

"But why don't you slide in feet first instead of head first?"

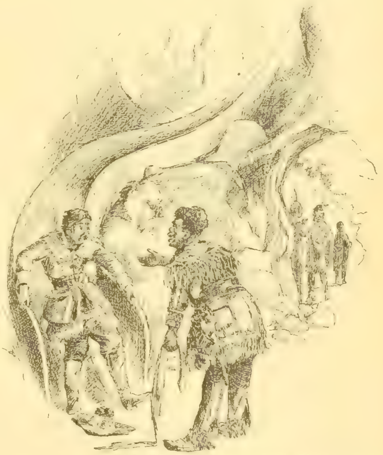
"Wy, dat's 'cause you don't understand de chute. Yer 'sperience with it shows you dat it curves up at de bottom. 'Spose now you start in feet fust, you'd be standin' on yer head at de bottom. Dat would be 'stremely uncomf'table. Don't you see de utmost importance ob startin' in right at de top so's to come out on yer feet at de bottom? Oh! you'll get used to it, an' like de 'zileratin' fun. But he'hs yer cot an' things: jes make y'rself at home. Good-night."

"But, wait, Sam, I want to ask you just one question. What was that noise I heard when coming in here, that sounded like a swarm of bees?"

"Oh! dat swarmin' noise? Wy, Mister Fred, dat's one ob de mysteries ob dis occasion. Don't ax too many questions;" and happy Sam left Fred to himself.

When Fred found himself alone, and all excitement withdrawn, he would have fallen upon his cot with exhaustion had he not immediately done so voluntarily. Tired body and mind must be restored, and he fell into a sound slumber from which he did not arouse until a late hour in the forenoon. When he awoke he found Dr. Hayden sitting in a camp-chair just outside of his bowery-house. At first he felt strong resentment toward the doctor: then remembering that it was his own voluntary action that had placed him in his late positions he felt that he was under an inevitable fate; and he exclaimed, as he arose:

"Charity suffereth long, and is kind; beareth all things, believeth all things, hopeth all things, endureth all things."



"HAH, HAH! I BET YOU NEBBER RODE DAT WAY BEFO'!"

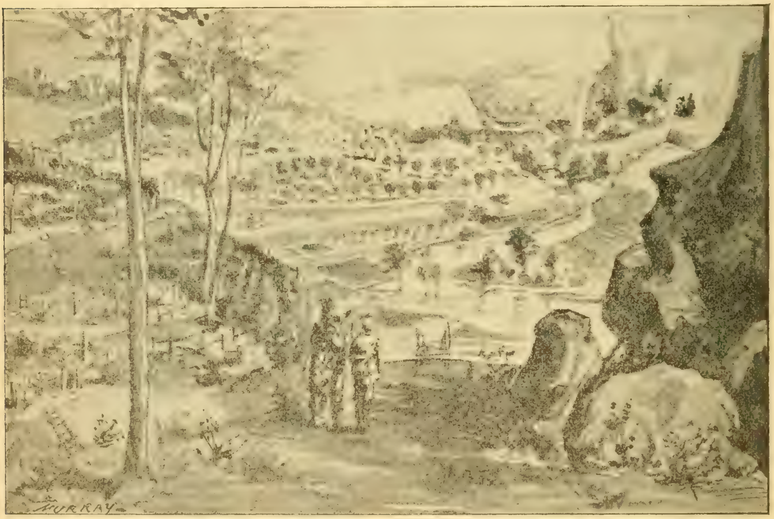
The doctor looked up from the book he was reading, and, with a pleased expression, said:

"That is good doctrine, Fred. If in all the trials and troubles of life people would look upon them with Paul's philosophy there would be more happiness and a better understanding of the ends and aims of our existence. But now, Fred, as your culinary arrangements are not all in shape, come to my cabin and have a lunch, and I will then show you through our happy valley."

"Yes," said Fred, "I have had some experience with one of its happy occupants."

"Sam is a happy fellow," replied the doctor. "I picked him up in a most unhappy condition in San Francisco, three years ago; but he has developed wonderfully since he came here. He is as faithful in his work, and as unfailing, as the rays of the sun."

As Fred walked down the successive terraces with the doctor, his eyes took in all they could of the surroundings. The forenoon sun lighted up the obsidian cliffs, sending down scintillating reflections of various prismatic hues. Successive terraces arose against the northern wall of the valley, while upon the south side there was a cliff a hundred feet in height. An occasional live-oak of natural growth and massive proportions lent picturesqueness to the view, and the later-planted eucalyptus, fruit-trees, and vines, were placed with a view to artistic effect. Every unsightly object, and even some of the highest-pointed cliffs, were covered with various flowering vines. Fred was a great lover of the beautiful in nature, and he exclaimed, "Doctor, you have made this a veritable fairy-land."



THE WONDERFUL VALLEY, CRYSTAL MOUNTAIN.

"I have tried to make it such, and I feel that it is a beautiful valley; and when you consider that those trees and vines, foreign to the valley, have been planted only eight years, you must know that this is the most fertile corner in all California. But here we are at my cabin, and your lunch will soon be ready."

Fred found the doctor's cabin about as primitive as his own; and smiling Samuel Johnson, Sam for short, was the presiding genius and cook. A simple breakfast of oatmeal mush, honey, milk, and fruit, was served. As the three sat down together to partake of it, Fred said, "Doctor, this beautiful valley has excited my Yankee curiosity, and I hope you will excuse me if I ask what may seem impertinent questions."

"There is nothing to hide from you, Fred, now that you are inside the valley."

"Well, then, doctor, do I understand that you are the only white man living in this valley?"

"The only one excepting yourself, Fred."

"An' Sam Johnsing," said the latter, with an appropriate grin.

"That's so, Sam. We three," said the doctor, emphasizing the words, "are the only persons, except Indians, that live here or even have knowledge of this valley."

"That is a mystery," said Fred. "I should expect to see some enterprising prospector looking looking down from the cliffs here at almost any time."

The doctor and Sam both smiled, and the former said, "Well, seeing is the most convincing argument, and by and by we will show you why it is that people do not look over the cliff."

"But," said Fred, wonderingly, "I know there is a passage into this valley, even if I did come through it blindfolded; and even a narrow passage would never have escaped the prying eyes of the gold-hunters unless there is a perpetual guard over it."

"That is it exactly," said the doctor. "There is a perpetual guard in the shape of a huge stone in front of the entrance. It is so nicely balanced that two persons, knowing the secret, can open and close the entrance with ease."

"Well, well! This *is* a mystery, sure. But, doctor," continued Fred, with a quizzical expression around the eyes, "I heard something that sounded like a swarm of bees when coming through that passage."

"Oh, yes!" said the doctor, musingly. "I can readily see how a bee-man might mistake the peculiar noise. You were then in the rattlesnake chamber. No man can pass through that chamber and live unless guided by our Indian friends."

"Rattlesnakes, do you mean to say? said Fred, rising abruptly. "Why, there must have been thousands of them."

"There, there, Fred; there is no occasion to be excited now. You are perfectly safe here. But let us change the subject. You have doubtless heard of several paradises for bee-keepers. Let me now show you mine."

By
ER
ROOT
Editorial

Dr. Miller writes that he tried the honey-jumble recipe (see page 23) without using any molasses, but he says it did not work as well.

At last we have a bee-keeper and honey-buyer who is prepared to make analyses of doubtful samples of honey. I refer to W. A. Selser, 10 Vine St., Philadelphia. See his ad., p. 40.

Home again. I am glad to tell you all that I am now once more at my post, ready to serve you as best I can, with renewed strength and energy. I reached home just as the last form was ready for the press. A. I. R.

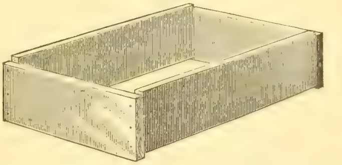
I now have in hand copy for the new honey-leaflet, by Dr. C. C. Miller. I knew that the doctor could do the work well, but he has considerably exceeded my expectations.

We shall have these leaflets ready shortly after the next issue, and will put them at such a price as will enable bee-keepers to give them away to their customers.

It would be a capital idea for bee-keepers to furnish their grocers these leaflets to hand out to all their customers. If they do not make a demand for honey, I do not know what will. Price and further particulars will be announced later.

Later.—Just as we go to press a package of honey-caramels from Dr. Miller has come to hand. They are as fine as any I ever tasted; and by the way some of the rest in the office are "working their jaws" you would think they were of the same opinion. They are made of honey, and have the distinct flavor of honey. The receipt is one of the doctor's own getting up, and will be given in the honey-leaflet above referred to

A subscriber wishes to know whether planer shavings are as good as chaff. We are using the former right along now, and we do not see but they winter the bees just as well as chaff. The shavings have the advantage that they dry out quicker; and if enough are used they are just as good for warmth. This same subscriber also asks what kind of hive-stand we use. All our hives, both summer and winter, are set upon stands like that shown in the accompanying engraving. It raises the hive just high enough to make it convenient for working, keeps the hives out of the wet, and the bottom-boards from rotting. These stands are made of the cheapest cull lumber, and at the present rate they will last ten or fifteen years.



"FISHING FOR SUCKERS."

The following burlesque appears in an advertisement of one of the prominent commission houses of Cleveland. As it illustrates so nicely the growth of some of these mushroom "snide" commission houses, I reproduce it right here:

> *Mr. John Dumbower, Dear Sir:*—In reply to your letter, would advise you to go into the commission business. There is no other business in which fishing for suckers is so remunerative. There are a great many of them, and, as has been said, "a sucker is born every day."
>
> One hundred dollars and plenty of confidence in yourself will start you nicely. You could rent a store and buy office fixtures on the installment plan. Then the first thing to do is to send out from 500 to 1000 circulars. On your card and circulars say that you "handle all kinds of produce on commission; special attention paid to the sale of butter, eggs, and poultry. Liberal advances made on consignments." (This latter in large letters.)
>
> By sending out lots of circulars with big quotations you will get shipments at once. You will have plenty of customers as soon as you have goods to sell. Many of the grocers, market men, and hucksters like new openings. They will at once patronize you, pay outside prices, and cash. They will work you for credit later. When goods are all sold, send shipper a postal card, saying: Goods sold at ——; market active; ship more."

One commission house in Chicago started out on almost exactly the policy outlined; but instead of paying cash, and getting in a financial muddle, their chief man "skipped the country" with the hard-earned funds of bee-keepers. There are numerous other commission houses that are organized and operating upon almost exactly these lines. Their final collapse is only a question of a short time; but in the meantime bee-keepers need to look sharp, to be sure they are not one of the victims.

DOOLITTLE IN FAVOR OF TALL SECTIONS, AND WHY.

DOOLITTLE, in his article in last issue, gives pretty strong testimony in favor of tall sections. You will note that he says that his own preference is for such, and that his reasons for preferring them are that "more in number can be set over a given space;" are "of symmetrical proportions," "pleasing to the eye, and do not give a scrimped appearance or pattern," and that "they bring two or three cents more per pound in the market." Mr. Doolittle was speaking in favor of sections 3½ x 5⅜ x 1⅝. This is so near the 4 x 5 7-to-foot that is more commonly used that I have no doubt his argument would apply with equal force to them. We as manufacturers dislike very much to help push along an odd-sized section; but *if* a certain shape brings more money to the producer, GLEANINGS can not and must not keep its mouth shut. Our journal is first and foremost the advocate of the honey-producer, and, secondarily, of the supply-dealer.

All through York State the tall section has been used to a more or less extent; and just at this time, when bee-keepers are preparing to order their stock, they would like to hear of all the good and bad things about the tall sections. Mr. Doolittle has spoken a word for them, and Mr. Salisbury, of the same State, has given a note of warning. Let's hear from more.

DARK CLOUDS AND THE SILVER LINING AT THE REVIEW OFFICE.

BRO. HUTCHINSON, of the *Review*, has been passing through deep waters. First it was the long and serious illness of his daughter Ivy, resulting in the breaking-down of her nervous system, and now she has been obliged to leave home for special treatment for mental disorder. Mrs. H., on account of the long strain and weary hours of watching, is completely broken down in health, and now she has had to go away for treatment. Our friend not only misses the wise counsels and assistance of his helpmeet, but he has to labor alone under the strain that his loved ones are away and sick—being cared for, it is true, by trained experts, but away from him.

I am sure the readers of GLEANINGS, especially those who take the *Review*, will sympathize most sincerely with Editor Hutchinson; but in spite of all the trouble and disadvantages under which he is working, it is a pleasure to note that he seems to see a silver lining to it all, and this is what he says, after asking his readers to extend a little leniency:

> I am doing the best that I can under the circumstances, and feel sure that these troubles can not always last; that I shall yet be able, as of old, to make the *Review* one of the best journals that there is for the practical honey-producer. It is my life-work, and I love it.

It is true the *Review* has been a little late; but its standard of excellence has been remarkably well kept under up under the circumstances. It is the prayer of the editors of GLEANINGS that all things may come out well in the end.

THE BICYCLE IN THE REVIEW FAMILY.

BRO. HUTCHINSON is now in possession of a steed—not a real live one, but a real high-grade one. He says he felt many times as if he wanted a bicycle. but—well, he could not afford it. When his wife was sick he took long walks with her for her benefit. Then the thought occurred to him, "Why not a wheel?" He secured one, and he and Mrs. H. and the girls learned to ride it, although they met some difficulties at the start. When he bought a typewriter he wondered if he could afford it. After using it a while he did not see how he could afford *not* to have it. The same was true with the bicycle. He says:

> And then if the brain lags, and the work moves slowly, take a spin of twenty minutes over the smooth walks of the outskirts of the city, and come back with the pulses bounding and the "blues" left scattered by the wayside. My brother editor, Ernest Root, will know exactly how I feel, and so, I hope, do many others of my readers. I am really hopeful that, by another summer, wife and I may be chasing each other over hill and dale—on wheels.

Yes, indeed, friend H., I know what it is to come back with the "pulses bounding," with a feeling of invigoration and a clear head for work. "Blues"—well, I do not know that I ever had them — but I have had something worse. Thanks to the beef diet and wheel-riding, I have a clear head, clear countenance, good health, and weigh the most I ever did in my life.

Mr. Hutchinson adds another paragraph, which is right along in line with what I have been preaching, off and on, for some years. I wonder that more bee-keepers do not avail themselves of the use of the bicycle for out-apiary use. Even if they have a horse, there are many times when they could make a trip so much quicker on the steed of steel—one that never requires feeding, never gets to balking, and is *always* ready. Mr. Hutchinson says:

> If I were running out-apiaries, I think that I should see to it that everything needed to work with was taken to each apiary, and then I should use a wheel as a means of conveying myself from one yard to another.

THE UNITED STATES BEE-KEEPERS' UNION.

MR. HUTCHINSON has not said very much on this subject in his own journal; but in the December number he has an editorial which I copy entire.

> I fear that the great majority of bee-keepers do not really understand what was done at the last meeting of the North American Bee-keepers' Association. It changed its name to the one that stands at the head of this article, and adopted a new constitution that will enable it to take on new and important functions. This constitution has been published in most of the bee-journals. It has not appeared in the *Review*, but I think now that it *ought* to have been published there; however, I presume that most of my readers have seen it. If they have not, GLEANINGS or *American Bee Journal* will gladly mail any one a copy containing it. In January the members of the National Bee-keepers' Union will vote whether they and their money shall be merged into this new United States Union. If this is *not* done, if amalgamation does *not* take place, then

> the new, or United States Union, will go on, regardless of the old Union, and do the work that is necessary to do—the prosecution of honey-adulterators for one thing, and the old National Union can sit still and do nothing except to guard and brag of the $700 that it has amassed since it stopped doing any thing. I don't wish to be disrespectful; but, honestly, the work for which the National Union was called into existence has been finished—*practically* finished—and other work of a hundred-fold more importance is looming up and growing greater and greater as the months and years go by. A good lot of money in the treasury is a good thing; but *good accomplished* with this is better than the money itself. In the "Extracted Department" of this issue of the *Review* you will find that I have written more fully upon this subject. I hope that every member of the old National Union will consider well before he votes. We need just one good, strong, wide-awake, enthusiastic national association of bee-keepers, and that is enough. Only get the thing started right and there is no question but that it will "go." Already money is being sent to the Secretary of the new United States Union, Dr. A. B. Mason, Sta. B, Toledo, Ohio, to join the Union "that is going to prosecute dishonest commission men." Just as soon as it is really evident that we are going to have a Union that will *do something*, there will be no lack of members. Let us have amalgamation, then will follow plenty of members, and there will be plenty of money; and then, with the right men at the helm—men with "go," determination, and enthusiasm—much good will come to bee-keepers as the result. The times are ripe for this move—let us move.

I indorse most heartily the sentiment of this. It is indeed true that the work which the National Union was called into existence to perform is practically finished, yet there is other work a hundred-fold more important. A lot of money in the treasury is a good thing; but a lot wisely expended, and an empty treasury, in prosecution of dishonest commission men and honey-adulterators, would be a far better condition. Mr. Hutchinson is right.

IMPROVEMENTS ON HIVES; IS THE DOVETAILED HIVE PERFECT? THE HIVE "MONOPOLY."

In the *American Bee Journal*, p. 834, a writer under the *nom de plume* of "Inventor," at the beginning of an article uses these words: "In the bee-papers I find the idea prevalent that the present Langstroth hive is perfect, and that no one should undertake to improve hives further than to accept the Dovetailed hive as a standard. . . An inventor can be just as honest as Mr. Langstroth, and I do not believe the time has come when all should say, 'It is perfect—let the monopoly go on.'" And, again, he says, referring to improvements on hives, "I think that manufacturers make a mistake in crying down improvements that they may control the sale of certain fixtures."

From certain other references and allusions, outside of what is above given, it would look as if Inventor had our firm particularly in mind, although it is possible he meant all.

Starting with the first quotation, most emphatically I do *not* believe the "idea is prevalent" that the Langstroth hive is perfect, and that "no one should undertake to improve bee-hives further than to accept the Dovetailed." I am quite conversant with what appears in our own periodical, and I believe I am tolerably well acquainted with the matter in other bee-papers. As for ourselves, we have never believed the Langstroth nor the Dovetailed hive was perfect. We have been looking so much toward improvements that many of our friends have asked us to "let up," because their new fixtures did not fit the old. But it is nevertheless the fact, that, when one manufacturer makes an improvement that meets with popular favor, the others follow along in the same line, and very often—yes, *generally*—cut prices. What foundation is there, then, for the sentence, "It is perfect—let the monopoly go on?" The fact of the matter is, there are hardly any two of the manufacturers that sell exactly at the same prices on hives. A comparison of the various catalogs will bear out the statement.

We have for some time had a department in this journal, called Trade Notes, in which we have illustrated and described various hives of merit. For instance, I would call attention to the Danzenbaker hive, the Heddon, and the Aikin-McKnight hive, all of which possess peculiar and valuable features, none of which are based on Langstroth dimensions. Moreover, The A. I. Root Co. is about to give in its catalog the option of the Dovetailed or Danzenbaker hive. The latter is as much a departure from Langstroth principles as any thing can well be. There is nothing standard about it, and yet it is a hive that gives much promise, and one too that certainly does contain some desirable features.

Again, I would call attention to the fact that GLEANINGS has pushed forward the merits of the tall section, and that right in the face of the fact that the 4¼ square ones have been used almost exclusively. If we as manufacturers were "crying down improvements," it is hardly likely that we would push forward an odd-sized section and an odd-sized frame.

From my point of view, Inventor's observations seem to be all wrong. If he had said the very opposite of what is set forth in the quotations above given, he would, in my humble judgment, have come nearer the truth. I venture to state that, if he would go through some of the large supply-manufacturing establishments of the country, he would have reason to change his mind. We have in our establishment an experimental room, and an "inventor" who is at work all the time. In the near future I hope I shall have the pleasure of showing that *our* "inventor" has not been idle by any means. The new thing will not be an improvement, but an *innovation*—something that, in my humble opinion, will be classed alongside of the extractor, comb foundation, movable frames, and the bee-smoker. The world does move, even in the apicultural line, friend Inventor; and if you will call upon us some time I'll try to convince you that there is progress, even at The A. I. Root Co.'s works.

I SEE by the *American Bee Journal* that the secretary of the U. S. B. K. U., Mr. O. L. Hershiser, says he will try in every way to make the meeting at Buffalo a grand success. Mr. H. is a hustler, and a man who is not afraid to work. It goes almost without saying, that the Buffalo meeting is going to be a good one.

THE editor of the *American Bee Journal* has a happy way of getting off puns. Here is a sample:

> Mr. R. C. Aikin, who contributes a valuable article to this number of the *Bee Journal*, is now writing a series of articles for GLEANINGS under the heading of "Ridgepole Musings." The rather toplofty first half of the name was suggested, we believe, from the fact that for several years Mr. Aikin kept bees in Colorado, several thousand feet above sea-level—on the very "Ridgepole" of the continent; and he is now in Iowa, where he is indulging in the "Musings" part of the heading. Judging from the first installment, the "Polings" of this new "Ridge Muse" will cause an "Aikin" (achin') for more of the same kind, on the part of those who "R. C.-ing" what he has to say.

TWELFTH ANNUAL REPORT OF THE NATIONAL BEE-KEEPERS' UNION; MR. NEWMAN'S CRITICISMS; AMALGAMATION FOR THE FUTURE.

THE above report, for 1896, is at hand. The Manager states that the past year has been one of the busiest since the Union was formed. After re-counting the usual defense cases, Mr. Newman has at last, it seems, done something in the way of taking up the difficulties between bee-keepers and commission houses. These last issues are rather an innovation in the Union. Although the constitution was modified several years ago, so that it could take in such cases, yet very little has been done along these lines till the year just closed; and then it would seem as if this tardy action were owing to the hints offered now and then during the year, and the criticisms of late to the effect that there are other issues tenfold more important. Some of the cases of the commission houses taken up have already appeared in the *American Bee Journal* and GLEANINGS; but beyond the mention of using the name of the Union, and publishing the facts, he seems to have done little more than the journals.

The subject of amalgamation is next taken up. The constitution of the U. S. B. K. U. adopted at Lincoln is given, and then the criticisms of the General Manager, as offered some little time ago, and published in the journals. Mr. Newman then pays his respects to the editors of the *American Bee Journal* and GLEANINGS, characterizing their criticisms of his policy as a "storm of abuse," "unpleasant personalities," and then adding that they threatened to defeat him at the election if he were a candidate for re-election as General Manager. Mr. Newman has misrepresented (I try to think unintentionally) by giving only partial quotations or telling only part of the truth and then putting his own construction on them. It was GLEANINGS that stated it would work by all "fair and honorable means" to defeat him if he were a candidate, but added the proviso, which Mr. Newman omits, that *if* it was his policy "to prevent and possibly postpone amalgamation indefinitely" *then* it would work to defeat him, etc.

How Mr. Newman can construe what was said in GLEANINGS as a "storm of abuse" and "unpleasant personalities," I can not see. It is true, I criticised his policy of confining his attention to the defense issue mainly, but criticisms of *policies* are not necessarily "storms of abuse" or "personalities."

Mr. Newman has done what, I am sure, will be severely criticised — viz., setting forth only *his* side of this amalgamation matter. He has not only put in his own criticisms, but those of a few others, *without their names*, giving *only one side*. A General Manager, or *any* presiding officer, should act impartially by giving both sides fairly. Certainly the opposition should have a chance to state its own arguments *in its own language*. As it is, he has attributed to us motives we did not have, and sentiments that we never uttered, by putting his own construction on what we did say. The journals, on the other hand, have freely given all that he has sent in for publication in the way of a reply or defense. Doing as he has, giving only one side, and that his own, in the report at hand, I shall be very greatly surprised if the proposed scheme for amalgamation carries; and, moreover, one of the men whom he has recommended to count the votes, has, in the *Progressive Bee-keeper*, criticised most severely the *American Bee Journal*. Such a person can hardly be impartial. I have nothing against Mr. W. D. French. Outside of his very apparent prejudice he would be as good as any man to count the votes and certify the results to the General Manager; but it certainly would have looked very much better, in view of the position that Mr. French will occupy, if he had kept still.

If amalgamation should be defeated, as now seems altogether probable, GLEANINGS will submit. The U. S. B. K. U. will go on, however; and if amalgamation can not be effected this year, strong efforts will be made to have it done a year hence; for bee-keepers can not afford to support two societies; and if Mr. Newman shall continue to take up the question of dishonest practices on the part of commission houses and the question of adulteration, GLEANINGS will be quite willing — in fact, will be glad — to support and work for him as Manager of any Union that may be formed in the future. Mr. Newman has shown splendid ability in *one direction* — viz., defense; and now if he will only turn that ability in *other* directions, GLEANINGS will be very glad to see him stand as General Manager.

NOTES OF TRAVEL

BY A. I. ROOT.

IN THE DESERT.

Dec. 28.—Here I am, away out on the desert, camping out, and writing these notes beside the camp-fire. We are at New River, Maricopa Co., 45 miles from Phœnix. We left the last irrigating-canal at 11 o'clock; and a board put up warned travelers, "No more water for forty miles." I rode on my wheel 14 miles before 8 o'clock, so as to be on hand at the start. I got breakfast on the way; but before starting I had some more breakfast. Let me explain, I wanted to take the long trip on my wheel alone; but everybody protested, and said I must have a team to carry provisions, bedding, etc., as there was no lodging-place for many miles, and, furthermore, storms might overtake me, and I might get lost. Finally a couple of bee-men, whom I shall always remember, rigged up a team, with provisions, bedding, etc., and announced they were ready to follow wherever I wanted to go. Their names are Thomas K. Elvey and J. F. Carey, both of Phœnix (the latter gentleman being president of the Maricopa Bee-keepers' Association). Both are very busy men; but when they found I was bound to go they declared I should go in good shape, providing I could stand "roughing it." This is a sample of the hospitality of this region. I ride my wheel as long as I choose, then stick it on top of the bedding, etc., and ride on the light spring wagon and listen to the stories of my companions and explanations of the strange things we come across every hour.

Oh how I have enjoyed this trip through the arid desert and up the canyons, and over the mountains! I am now writing by a candle stuck in a bag of barley. My table is a roll of bedding, and my seat is the soft desert sand covered with a piece of canvas. The camp-fire is at my right hand. Our supper consisted of potatoes roasted in the ashes, toast made on a forked stick; meat; fig jam, made from fruit grown by Bro. Elvey, etc. Just think of it—sitting on the ground out of doors, writing by a candle, between Christmas and New-year's day!

This afternoon we passed a flock of 2400 sheep, managed by one man and a shepherd dog. I took off my cap to the man, and felt like doing the same to a dog that had the intelligence and skill to guide and direct this great drove in any direction desired.

We are near a running stream of water, after our long drive, and it was my privilege to build the fire and help gather wood for the night. I never felt so well in my life, and I have been out of doors almost constantly for the last three weeks. Now, while I have every thing so comfortable about me, and two old veterans in the business near me, I think I will tell you something about

THE SALT-RIVER VALLEY AND IRRIGATION.

This valley is about 50 miles long by about 30 miles wide. The river runs through the valley, and, strange to tell, there are thousands of acres as flat and level as a floor, only that the surface is on a regular slant toward the south and west, at an average of about 10 feet to the mile. There are, perhaps, 250,000 acres capable of irrigation. All along the river are dams that take water into canals at intervals. These canals are at first considerable-sized rivers; but smaller ones lead off as needed, until all the water of the river is spread equally and equitably over the land. Now, please bear in mind that the whole valley is divided by good roadways into square sections one mile on each side; and along each road, and on both sides of the road, is one or sometimes more irrigating-ditches. I say one or more, for there are often three ditches, one on one side of the road. Sometimes the water is hustling in one ditch in a certain way, and in the *opposite direction* in the ditch right alongside. This is managed by raising the sides of the ditch at one end, and cutting down at the other. Now, remember the water in ditches side by side is often at different elevations. One ditch often crosses another as much as three feet above the lower one. A wooden box carries the water across. Of course, bridges or plank sluiceways must cover the ditches at all road-crossings. Go where you may, the sound of rushing water and babbling brooks is always in your ears. This sound, with the sight of the running waters, is to me most inspiring. But, wait a bit! All over this valley cottonwood-trees are growing along the ditches. In a little time they shade the road, and in the older settlements the branches meet overhead. Even in *winter* time the shade of these trees every afternoon is very grateful. The roots hold the banks of the canals from being washed out. The cottonwood holds its leaves all winter, and grows with wonderful rapidity. It is so hardy that green posts driven into the ground during the winter will grow almost certainly, with plenty of water. Now, all the fences are wire, and the wire is stapled to these cottonwood posts or trees*.

The great staple crop of this valley is alfalfa. I have told you of the beauty of the fields. The greater part of the alfalfa is fed to cattle, and this is the place of all the world for patients on the beef diet. In Cleveland, O., I paid 50 cents for a plate of ground beef. At the "Grotto" restaurant, in Phœnix, for *10 cents* I got more than I ever eat; or a nice tender steak, more than I could eat, for 10 cents, potatoes included; butter, milk, and cheese, about the same as in Ohio. Chickens, turkeys, geese, hogs, and, in fact, all kinds of stock grow fat on green alfalfa. At the restaurant I got a nice dinner of turkey for 15 cents, potatoes included.

Large quantities of hay are made here and sold at $4.00 or $5.00 a ton. At the "corral" (livery stable) they will take your horse, and feed and care for him for 25 cents a day, and hitch up when you want him again. If you do not leave him a whole day, it is only 15 cents. Please remember, the horse needs *no grain* if he has enough alfalfa hay. Still further: If the man who owns the horse has his own blanket with him he can make his bed on some hay in a vacant stall, and *not a cent* for lodging.

One morning I was to meet some bee-friends at the corral at daylight, and I found quite a number of well-dressed men getting out of their blankets, and washing at the pump where they water the horses. Soap is furnished to all, and *no charge*. When I spoke of sleeping outdoors, one of the bee-friends showed me his bed under the shed adjoining his bee-house, where he sleeps right out in the open air *every day in the year.* Think of sleeping in a bedroom with *not a window open!* No wonder the people of this valley are *healthy.*

Brother Elvey tells me the coyotes will be howling around us before morning. Our candle is still burning right in the open air, but it is almost bedtime. We have just been listening to a story of killing 55 ducks at one rising—at three shots. The next story, by friend Carey, was about killing three deer out of a bunch of four before they got away.

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* Besides the music of the "babbling brooks" every morning, the air is vocal with the songs of the meadow-larks, blackbirds, and the cooing of the mourning-doves. By the way, there are three kinds of doves.

Good-night, dear readers of GLEANINGS.

Dec. 29.—Last night I went to sleep gazing at the brilliant starry vault above. I believe it is generally agreed that the heavens are more brilliant here in the South, especially on the prairies, than in the North. Well, just before midnight friend Carey announced that we were in for it — raindrops were falling. Our supper-table was left standing, so as to be handy for breakfast; but I tell you there was some hurried packing of the dishes, bedding, etc., into the wagon. Soon the stars were gone, and it was too dark to attempt to regain the road. Our fuel was about out, and no more to be had — no lantern — we might get into the river, overturn the wagon, or do worse. When things began to look desperate Bro. Elvey remembered, evidently, the old Bible story of the torches inside the pitchers — Gideon's army. He got the end of the candle left after I got through writing, lighted it, and held it inside the water-pail turned on its side so as to keep off the gusts of wind, and we regained the wagon-road, and in this manner reached a barn which *happened* to be near — the only one, in fact, in many miles; and, didn't we rejoice in the shelter!

THE BEE-KEEPERS OF SALT-RIVER VALLEY.

Between forty and fifty bee-keepers have produced, during the past season, 31 carloads of honey. Many of the apiaries have over 200 colonies in one location, and some have even 300; and even with this large number, as much as 175 or 200 lbs per colony, right through. The valley is said to be pretty well stocked at the present time, however. Even though the crops of honey are large, freight is so heavy that the net price realized by the bee-keepers is very low. Alfalfa honey sells, retail, at 5 cents; by the 60-lb. can, 4 cents, *can included*. In car lots, after taking out cost of cans only about 3 cents is realized. A nice article of well-ripened alfalfa honey is nearly if not quite equal to our best eastern white clover.

Dec. 29.—After the rain slacked up I asked what our bill was for the use of the barn, for our bedding and horses, and the reply was *$2 00*. We had our own provisions, and furnished our own feed for the horses. I finally persuaded him to accept $1.00. This place (Gibson's ranch) was the only one where we felt like complaining of the prices. To-day we saw great mountains, with snow-capped peaks, towering above the clouds. While some were illuminated with sunshine, many others were being deluged by thunder-storms, and twice we saw floods of muddy water rushing down across our path. My supper by the camp-fire was quail on toast. These desert quail, under Mr. Elvey's cooking, were delicious. He says he can dress eight quail in sixteen minutes.

Along at intervals we find water, and some of the watering-places are curious and interesting. At Squirrel-hole Springs the water bubbles up in little holes in the solid bed-rock of a dry river-bottom. The largest of these holes will admit a water-bucket.

In going up a long mountain road we saw ahead of us three teams with their huge loads, and four or six horses, stopped by a breakdown. Of course, all three stopped to help repair the wagon belonging to the unfortunate brother. Mr. Elvey soon found one of the crowd was a Mr. W. W. Burford, of Kansas City, a bee-keeper, and a subscriber to GLEANINGS. He walked back with us up the mountain, just to have a little talk. Friend B. has been almost a year exploring Arizona, and has among his collection a real *mummy* that he found in one of the cliff dwellings.

After the severe rain of Monday night I found it impossible to run my wheel over a good deal of the road, on account of the sticky "doby" mud. It would cover the rubber tires like melted beeswax; and when it got on the steel chain there was no more wheeling, and it is a long job to clean it off, I tell you. The trouble is not confined to bicycles, for at some points this doby mud collected on the wagon-wheels until they looked like huge barrels, and two stout horses could hardly pull a light spring wagon. When this load of mud dropped off the wheels of the wagon it was, of course, a big obstruction in the road for the next team that came along. The greater part of the roads, however, are very hard and firm, and there are only a few days all winter when there is mud anywhere. The last night of 1896 we passed at Hance's Ranch. As the family were away for the winter we found only the hired man and a teamster, who had a sick horse. Now, these teamsters, like many of the miners, seem to think the best credentials of good breeding is to bring in cursing and blasphemy about every other word, whether it makes sense or not. The sick horse was cursed, and the weather and every thing else. I tried various subjects of conversation, but the replies were all the same. I finally made up my mind that, even if we were in one sense forcing these people to give us a shelter from the snowstorm without, I should get these two men apart, and, one by one, labor with them in regard to such talk. After supper we sat around the fireplace and began to tell stories; and I prayed most earnestly for grace and wisdom to speak the right word at the right time. My prayer was answered in a very unexpected way. In fact, I almost held my breath in astonishment when story after story was told, without a slang word of any kind. These two men were so changed I could hardly believe my senses. Instead of complaining and sneering at every thing good and holy, they were pleasant, respectful, and gentlemanly. When Mr. Elvey and myself were getting under our blankets that night I said:

"Friend E., can you explain this sudden and wonderful change in these two men during the pleasant evening just past?"

"I suppose I can partly, Mr. Root. I saw how their talk pained you, and I suggested to Bro. Carey that he should talk with them, as he is used to such characters."

Let me explain here, if I haven't before, that my companions are both professing Christians. Mr. Carey is a Quaker, and in the true Quaker spirit he presented the matter so well that these two seemed "clothed and in their right mind," all the rest of the time we were there. New-year's morning the sky was bright and clear as I wished all a "happy new year." Then I added to the teamster:

"My dear friend, can we not, this morning at least, 'praise God, from whom all blessings flow'?"

"Yes, sir! that's my doctrine," he replied; and I inwardly prayed that it might be so, instead of *cursing* God at every breath.

Oh what a "happy New-year's day" I did have! As we reached the mountain pass and prepared to go down Copper Canyon we had a glimpse of the Verde Valley, three miles below, or at least we had a glimpse of the clouds away down below us. How strange it makes one feel to be with the sun far *above* the clouds! Then the canyon all the way down is full of beautiful shrubs and various kinds of evergreens; and pretty soon a spring commences to send down with us a clear and sparkling "babbling brook." This brook is green with most appetizing and brilliant water-cress almost its length. The road takes first one side of the canyon and then the other; and the grade is so gentle that a wheelman would go up or down almost every part of the route. The Verde (green) Valley is somewhat like that of Salt River, but not as level, and only a little of it is under irrigation, although there is an abundance of water in the Verde River at all times of the year.

Let me explain here that I found we had a subscriber at Camp Verde. Here is what he answered when I wrote him:

> *Dear Bro. Root:*—We shall be delighted to entertain you as long as you can stay with us, and may be able to go with you to some of the points of interest to you. We had thought of sending you a card, but supposed you would go to Flagstaff by rail, and so not come near enough to us. We are Ohio folks, and have lived in Medina. C. B. BELL.
>
> Camp Verde, Ariz., Dec. 24.

What strange things do happen! After we were received and made welcome at friend B.'s pretty home I learned as follows:

Years ago a very pretty girl was threatened with consumption. I was then a patient of Dr. Salisbury, and finally induced the relatives to try the Salisbury treatment. Dr. S. said we had waited too long, he feared, but we would do our best to rescue her. For a time she seemed to be recovering; but she caught cold, and went down very suddenly, leaving two children. Mr. Bell, whom I found away out here in the wilderness, is the older one of these two children. Oh how it did rejoice my heart to find a Christian home away out here in the desert.

CHILD-TRAINING.

CONCLUDED FROM LAST ISSUE.

By Miss Sarah Smith.

By way of contrast let me give you this little incident of another mother, told by her daughter after reaching womanhood. "One day," she says, "I stood watching my mother make strawberry preserves. Beside the stove stood a large milkpan containing squash for pies, with the milk and egg already added. 'Now, Bridget,' said my mother at last, in a satisfied tone, 'it is done; take the kettle off.' This was accomplished, and then, with almost incredible stupidity, the girl actually emptied the strawberries into the squash. My mother turned her head just too late. She was quick and impulsive, but there escaped her lips only a despairing 'O Bridget!' Then as she saw the girl's instantly regretful face, she uttered no angry reproaches, no useless lamentations. No doubt," says the daughter, "when my tired mother, who was not strong, went upstairs to rest, she felt disheartened, and thought that her time, labor, and material had all been wasted; but probably she never did for me a more valuable morning's work than when she gave me that unconscious lesson in sweet self-control."

In my work as a teacher I have come to the conclusion that little children learn most easily when not making a conscious effort to learn. The very effort to attend often takes the mind from the thing to be attended, and leaves it less free to grasp the new thought; hence it is that the unnoticed child, supposed to be wholly engaged with his play, is often absorbing every word you utter, and making conclusions that would astonish you could you look into that active little brain. Do you know that nearly all a child's judgments of persons and things are formed before he is eight years old, and formed for the most part by the conversations he has heard at home and the unconscious influence of those about him? In proof of this, witness the politics of the six-year old—same as his father's, of course. Yes, that daughter's hasty, unwise marriage, that so sadly grieved the loving father and mother, may be traced to influences set in motion before she was old enough to wear long dresses. The contemptuous tone in which she so often heard the unmarried women spoken of; the praise she heard bestowed upon the successful man, regardless of the rights of the case; the choice for her of accomplishments rather than culture; the early-fostered ambitions for style and show, all had something to do with it. You can not begin too soon to help a child form right estimates of character. I know a father who takes special pains to have his ten-year-old daughter meet men of real worth, and who seeks opportunities to commend in her presence the true and honorable, especially when found in the humble walks of life, or where not likely to be appreciated, and to show contempt for the base, unworthy, and pretentious, however well supported by name or position. The events of every town or neighborhood furnish many opportunities to speak your convictions, to utter a warning, or point a danger years before the child is old enough to be made uncomfortable by such remarks or allusions; all of which will help in forming her ideals of life and persons.

And, again, I repeat, high ideals save. Now, I suppose if I should ask for greater freedom for the children in your homes you would smile, thinking that far too many now do just as they please. I do not mean greater liberty or license, but greater freedom to grow naturally, greater freedom in the exercise of their own individual tastes and choices in non-essentials; freedom from the ever constant consciousness of your presence. I am quite sure that children are often harmed and burdened by our attention, begun as soon as born, when, instead of being allowed to remain quietly in a darkened room with only enough attention for their comfort, they are dragged out to be shown to every chance caller, and hugged and kissed and trotted and tossed till no wonder nervous days and sleepless nights follow.

So much is written nowadays about what parents should do for their children that I am afraid some are in danger of overdoing. While the very best training often consists in a judicious letting alone, I do not mean that children are to be left wholly to their own devices, to be allowed to get into mischief, quarrel among themselves, or run wild on the streets. While you are never to drop the reins of family government, you need not hold them in such a manner as to make the child constantly conscious that he is being restrained or driven.

Nervous and fussy mothers weary and irritate their children with their numerous cautions. The child ought not to have the feeling that he is being watched all the time. My sympathies are with the boy who sent the cat back into the house because, as he said, he could not have her hanging around all the time; it was bad enough to have God watching him all the time. "The eyes of the Lord are in every place, beholding the evil and the good," is a grand true thought, but not just the one with which to begin a child's religious instruction. Postpone that till you have taught him that they are *loving* eyes. Furnish the child right environment, and then—hands off!

I remember being at one time in a home where was a little child about two years old who had been kept in very closely all winter. When the bright spring days came she grew eager to get out of doors; but no sooner was this permitted than she started as fast as she could go for an orchard and a ten-acre lot back of the house. When brought back she would cry, and thus spoil all the pleasure of the morning walk. It was finally agreed that she be allowed the desired freedom while we watched her unobserved. She started as usual for the orchard, trudging on as fast as she could go toward liberty and the vast unknown. Her happiness was complete till she happened to look back from just below a little hill and found herself out of sight of the house. Surprised, bewildered, and homesick, she gave a pitiful little cry of "Mamma!" and was very well content to be led back to the bondage that meant love and safety. It seems to me that there is a suggestion here for the treatment of older children. Let the boy or girl who has reached the restless period of life take short flights out into the unknown world, giving him a chance to test his own powers and exercise his own judgment; he will come back all right, with an added love and appreciation for home. I like the way Aunt Joe managed the fiery Dan in "Aunt Joe's Boys."

You remember, no doubt, how the immortal George Washington rode his father's colt to death, which was bad for the colt, but better for George than going to sea, as he at first proposed doing. I often wish that boys in their teens could be set to breaking colts. It would furnish the muscular activity and mental excitement so much needed at this period of life, and give an opportunity to work off surplus energy and pent-up steam. But if he can ride nothing else, do let him ride his hobby, if he has one.

I was reading the other day of a mother who said she did not worry about John or Henry, but she did feel uneasy about Willie, because he had no hobby. She said if either of the other boys had a leisure hour or holiday they always knew just what to do with it; but Willie was always at the mercy of whatever happened to come along. So, do not discourage hobbies, even if there is some little expense connected with them that to you seems foolish. Better spend on chemicals, postage-stamps, or tools, than upon cigarettes and trashy literature.

Seek to give the child a chance to do the right thing from choice; then if he fails, let him suffer the natural consequences and thus early learn the lesson of cause and effect. Let him see and feel in all this that he has your sympathy and love, but do not be weak enough to step in to shield him from the consequences of his own deliberate wrong-doing.

A little child in school one day was given with the others a piece of colored paper to fold and paste. Failing to follow the teacher's directions, his paper was torn and spoiled. He immediately informed the teacher that his paper was spoiled, expecting to receive more. He was met with no reprimand for his carelessness, but only "I am sorry you have spoiled the paper I gave you." How could he more easily or with less cost and pain learn this life-lesson of care in the right use of gifts and possessions?

And now before closing I want to say just a few words about the strong-willed child that is so often such a dread to parents and teachers because so hard to control. These are the children most likely to be misunderstood and wrongly dealt with—made of the finest material, requiring the greatest care and skill, but, like the hardest wood, difficult to manage, but strong, firm, and true, and most valuable. Really it is the amiable, docile child that should cause you the most anxiety, not the strong-willed child. The world needs people to-day and every day who are strong-willed enough to carry through discouraging reforms and all worthy undertakings. It is the rushing, plunging stream that has force to carry the sediment and refuse to the sea, to turn the mill, and to flow steadily on through the drouth of summer and the chilling winds of winter. Never think for a moment of breaking such a child's will; seek only to guide and direct it. Avoid as much as possible the arousing of a child's self-will or obstinacy. Make only reasonable demands, and always in a pleasant, courteous manner. Avoid direct commands, as requests should carry the same force, and are less likely to antagonize. Then if a child disregards your request you can often leave him the choice between two alternatives; as, be quiet or leave the table. Say "please," or go without the desired object.

How much may be accomplished by tact is well illustrated by an incident given in *The New Crusade*, of a child visiting her aunt. On the first day after the little girl's arrival, as she was playing out of doors in the early evening her aunt tapped on the window-pane and said pleasantly, "It is bedtime now. I want you to come in." The little girl faced her, and said, "Do you think I've got to come in because *you* say so? Huh! I won't do it." Her aunt tranquilly resumed her work, taking no further notice of the child. Gracie evidently looked for a show of indignation when she came in between nine and ten; but no notice was taken of her, and she went to bed flushed with victory. But the next night, immediately after tea, her aunt took her up to bed, saying kindly that she would be glad to let her play for an hour first, but she could not trust her to come in when she called her. The little girl looked thoughtful; but as soon as her aunt left she dressed herself again, went down to the yard, and was soon sporting about as wildly as ever. No attention was paid to her when she came in; but the next evening after tea she was again taken up to bed, and the door was locked. "If you lock me in," she exclaimed, "I'll tear the sheets and pillow-cases all to strips."

"Oh! just as you like as to that; only, of course, you'll have the same things on your bed to-morrow night, as I can't afford to have more than one set spoiled."

"Well, I can't bear to be left alone," said Gracie, beginning to cry in earnest.

"I ought to have thought of that," said her aunt. "Of course, then, I'll stay with you."

Then she talked to the child. She told her what a grand thing it was to have such a will. It is like riding a spirited horse that is carrying you fast in the right direction, but that an uncontrollable will is of no more use than a runaway steed. Instead of giving her the "good scolding" which most mothers would say she richly deserved, this sensible woman told her stories of strong-willed girls who, in the face of terrible odds, had earned a living for poor and disease-stricken parents, or achieved an education for themselves, or started some reform for others which they had victoriously carried through. "That's the sort of girl you will be, Gracie," she exclaimed. "A little girl like you must amount to something, either good or bad; and I say it will be good."

"I say it will be good too," exclaimed the sturdy little soul, sitting up in bed, and casting her arms about her aunt's neck. "I will try, Auntie; you'll see."

Such incidents as this make one feel that there is no case so difficult that might not be reached if we were only wise and true enough to touch the right spring of action. To this end and for this purpose we need to study child nature in general and each child in particular for the laws that govern action, for there are laws. Child-training is not a hit-and-miss work. The laws of cause and effect hold good here as everywhere else in the world. We may not be able always to trace results to causes; but the more we look for it, the oftener it will be found, and help explain conduct that seems so inexplicable.

We had a little boy in our schools at one time who was always good when clean and well dressed, but willful and troublesome when untidy or wearing old ragged clothes. I was much interested not long ago in the account of a little child who refused to have her picture taken. Coaxing, threats, and punishment were all of no avail for a long time. At length she promised she would comply with their wishes if they would wait until after her birthday party, one week hence. This was agreed to, though what that had to do with it could not be imagined until she was overheard bidding her dolls good-by because she must have her picture taken and die, and go to heaven as her little cousin did. She did not want to die, she informed her doll, but mamma said she was naughty not to want to do as they wished. All this had come from her hearing the coincidence of her cousin's death, and the having had her picture taken just before, spoken of when on the floor with her blocks. The dear child had been adjudged willful and disobedient, when only ignorant and frightened.

We should do well, many times, to regard wrong-doing as a symptom and not a diseased condition, and endeavor to do as the good physician does—seek to discern and remove the irritating cause. In order to do this you must live with the children in the child's world, entering into their kingdom in as humble and teachable a spirit as a little child. You can then gain their trust and confidence, and will thus become their refuge and strength; and they in return will be your song of rejoicing, your crown of glory, your exceeding great and precious reward for time and eternity.

SPECIAL NOTICES
FROM
BUSINESS MANAGER

MAPLE-SYRUP LABELS.

In Ohio the law provides that every gallon of maple syrup offered for sale must be labeled, and bear the name and address of the producer. This is a precaution to guard against adulteration. We are prepared to furnish syrup-labels as follows:

3¾x5, to fit panel on can, with name and address printed—100, 40c; 15c per 100 after 1st 100. Postage, 5c per 100. Long enough to wrap around the can, 10c per 100 extra, and postage double the above.

OUR SEED AND POTATO CIRCULAR.

Send for seed catalog and potato circular. We have a nice stock of seed potatoes that we are offering at exceptionally low prices, while they last. We would call the attention of our Canadian subscribers to the fact that the postage on seeds to Canada is 1c per oz., and ask them to kindly send us 17c postage for their premium potatoes instead of 9c, as our home subscribers are are asked to do.

We have also added to our list of table beets the well-known Edmund's Early beet. This is handsome in shape, and a blood-red color, and has given the best of satisfaction in eastern markets. Price 5c per oz., 30c per pound; postage 9c per lb. extra.

BLACKWALNUTS AND SHELLBARK HICKORYNUTS.

We would again call the attention of our readers to the fact that we have nice blackwalnuts, already hulled, that we are offering at the low price of 15c per peck, or 50c per bushel. Nature has been bountiful in her gifts to us the past year, and the long winter evenings we are now having afford us a time for the enjoyment of some of them. These nuts can be included with other goods by freight at a trifling cost for transportation.

We have also succeeded in getting track of another small lot of shellbark hickorynuts, which we can offer, while they last, at 50c per peck or $1.60 per bushel. Send in your order early before they are all taken. Walnuts and hickorynuts are not a bad dish together.

HUBBARD SECTION-PRESS.

There are a great variety of devices for the purpose of putting together the one-piece section. Many have been submitted to us for trial. Among them all the Hubbard section-press stands unapproached in simplicity, ease of operation, effectiveness, and rapidity. Our help have repeatedly folded a box of 1000 sections in forty minutes, without breaking more than one or two. The bee-keeper who uses 5000 to 10,000 sections and over can not afford to be without one of these presses. They are adjustable for various sizes, but are, of course, sent out set for the 4¼ sq. section. We have so much confidence in the press, that, having the opportunity offered us recently, we secured the patent from Mr. G. K. Hubbard, now of Riverside, Cal. We now have exclusive right to manufacture, and shall be pleased to supply other dealers in bee-keepers' supplies who will list them in their catalogs.

HONEY MARKET.

We have engaged, and offer for sale at very favorable prices, the following lots of comb honey, and shall be pleased to hear from any interested.

1000 lbs. No. 1 white, in 24-lb. cases, in New York State. Will sell in 200-lb. lots at 12c, or the lot for 11½ cts.

600 lbs. fancy white clover in 12-lb. cases, and 200 lbs. buckwheat, in 12-lb. cases. Will sell the latter at 8½c for the lot—the clover in 200-lb. lots at 13c, or the lot at 12½ cts.

We have also three lots in Michigan, consisting of 1500 lbs. fancy and No. 1 white, in 12 and 16 lb. cases, which we offer at 12c per lb. in 200-lb. lots.

1500 lbs. amber, which we offer at 10c per lb., and 500 lbs. buckwheat, which we will sell at 8½c per lb. in 200-lb. lots, or 8c for the lot.

Of extracted honey in stock here we offer two 60-lb. cans of Florida mangrove honey at 6c per lb.; 5 cases choice Texas honey at 6c by the case; what we have left of alfalfa (a few cans) at 6c per lb. by the case, or in 1-gallon cans, 6 in a case, at $4 50; choice willow-herb in 60-lb. cans, 2 in a case, at 7c; some good amber honey at 5c. We have also a barrel, 500 lbs., of amber honey, in New York State, which we offer at 4½c per lb., and some buckwheat honey in 60-lb. cans at 4½c by the case of 2 cans. Choice basswood honey in Wisconsin, in 500-lb. barrels, is offered at 5¾c, and in 60-lb. cans at 6c. Samples of any of these lots mailed to those interested.

SPECIAL PRICES TO CLOSE OUT STOCK.

We have in stock at Baltimore, Md., the following items of stock which we desire to close out, and are willing to do so at a special price rather than have it returned. If you can use any of it let us hear from you promptly; or, if more convenient, call on or write to Rawlings Implement Co., 209 So. Charles St., Baltimore, Md.

Six 10-lb. boxes extra thin foundation, offered at $5.00 a box.

Three 20-lb. boxes light brood foundation, L. size, offered at $8.00 a box.

2 crates, 50 each 24-lb. single-tier shipping-cases, no glass, paper, or nails, $4 00 a crate.

1 crate, 50 12 lb. single-tier shipping-cases, no glass, paper, or nails, $2.50 a crate.

100 winter cases which we will sell at $5.00 for 10 or $40.00 for the 100.

10 cases of two 5-gallon sq. cans, offered at $6.50.

70 one-gallon square cans, offered for $6.30.

3 comb-buckets, offered at $1.00 each.

2 Hubbard section-presses, at $2.25 each.

5 Swiss wax-extractors, offered at $2.25 each.

3 sheets 28x96 zinc, at $1.10 per sheet.

These are, of course, special prices, offered only while they last.

We have also at Good Hope, Ohio, the following nailed and painted hives, made a few years ago:

4 No. 1 Dove. hives with flat covers. and 2 with gable covers, complete, offered at $1.00 each, or $5.00 for the 6.

6 No. 11 Dove. chaff hives, complete, at $1.50 each, or $7.50 for the 6.

1 No. 7 Simp. hive, two-story, for $1.00.

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We guarantee double the yield when hens are fed green cut bone prepared on our new **GREEN BONE CUTTER.** Only cutter awarded premium at World's Fair. Cuts easier, faster, finer than others. Satisfaction guaranteed or money refunded. Send for our FREE circular and prices. Address

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is about the actual worth of our new book on Incubation and Poultry. Contains a full and complete description of the **Reliable Incubator** & the Brooder of same name, together with cuts and instructions for build'g poultry houses and much of interest and great value to the poultryman. Sent on rec'pt of 10c.

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and protects the scrotum, and should be worn in every case where there is any drooping of the scrotum. It is especially recommended to wheelmen, equestrians, base ball, foot ball, and lawn tennis players, athletes, men doing heavy work, much walking or standing, etc. Ask your physician's advice about wearing a Suspensory—perhaps it will relieve your backache. Our $1.00 grade is very popular, and your dealer, or we, will sell you one and refund money if not perfectly satisfactory. For sale by all druggists and dealers in athletic goods. Send for price list. A. J. WELLS MFG. CO.,
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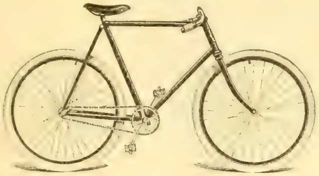

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Every piece and part of the Cleveland Bicycle is made in our own factories by the best of skilled workmen, under most rigid inspection. The result is a Bicycle embodying, in a marked degree, features of safety, speed, and durability.

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We want the patronage of intelligent and discriminating buyers. 1897 catalog mailed free for the asking.

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Send 4 cents postage for our booklet, "Shakespeare and the Bicycle." Twelve illustrations in colors by F. Opper, of "Puck."

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Our 1897 hives, with improved Danzy cover and improved Hoffman frames, are simply "out of sight." Acknowledged by all who have seen them to be a great improvement over any hive on the market, of last year.

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WEED NEW PROCESS

Cheaper and better than ever; clear as crystal, for you can read your name through it. Process and machinery patented Dec. 8, 1896, and other patents pending. Samples of the new foundation free.

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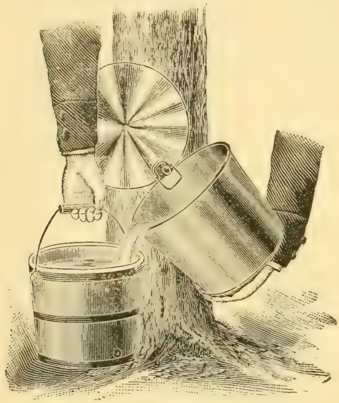
The time is at hand when those who produce the delicious sweets from the sugar maple must be getting ready. For the best results you must have good clean apparatus of the most approved type, and you really can not afford not to read Prof. Cook's book, "Maple Sugar and the Sugar-bush," which we furnish at 35c, or we will give a copy free to all those who buy sugar-makers' supplies of us to the amount of $10 or more. We do not sell evaporators, but think we can do you some good on spouts, pails, covers and, cans. Our tin pails and cans are made of American tin-plate. The plates are tinned and made up into cans by the same firm; and by buying carload quantities we get them at bottom prices. See table below. The pails and cans are machine-made, far superior to hand-made, and guaranteed not to leak.

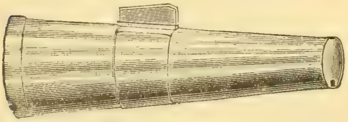


BUCKET WITH HINGED TIN COVER.

This cut shows the manner of hanging the bucket on the spout, and also the manner of emptying with the hinged tin cover. Most progressive sugar-makers nowadays use covers of some kind.

Record hinged tin covers................	$5 00 per 100.
Reversible woodcovers..................	3 50 per 100.

RECORD SAP-SPOUT.

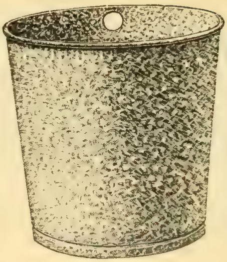


This spout is cheaper than any other made,and we believe it is as good as any, if not better. It is used almost exclusively in this section. Price $1.00 per 100.

TIN SAP-BUCKETS.

Grade of tin. Price per 100.	10-qt.	12-qt.	15-qt.
IC charcoal sap-buckets...	$13 50	$14 50	$17 50
IX charcoal sap-buckets	15 50	16 50	18 00
IC coke-tin sap-pails............	12 00	13 00	15 00
IX " " "	14 00	15 00	17 00

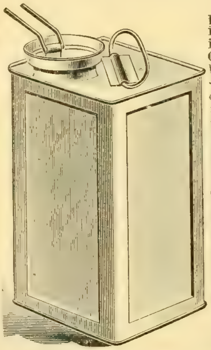
The sap-pails in above table, of coke-tin, are offered to compete with other cheap buckets you will find in the market. The tin in these cheap pails is just the same as in the better ones, except the coating, which is much thinner. We guarantee these equal or superior to the other cheap buckets in the market, but recommend, instead, the higher-priced ones with better coating; or, better yet, the galvanized. All the galvanized buckets, as well as the 10-qt. tin ones, have holes punched like cut below, while other tin buckets have wire loops.



We are offering a special bargain this year in galvanized-iron buckets. These are by far the strongest and most durable bucket made. The blank steel is cut out and made up into pails, and then the whole is dipped into molten metal, and coated all over, inside and out. All seams are filled up so they can not leak, and rust has no chance to work on them anywhere. If you want any thing better than the I C tin, the galvanized bucket is the one to select. There is only one objection to them, as compared with tin. The surface is somewhat rougher than tin, and therefore they are not quite as easily cleaned. This is a slight objection as compared with the greater strength and durability of the pails.

Price, 10-qt. galv., $14.50 per 100; 12-qt., $16.00 per 100; 14-qt., $17.50 per 100.

ONE-GALLON SQUARE CANS.

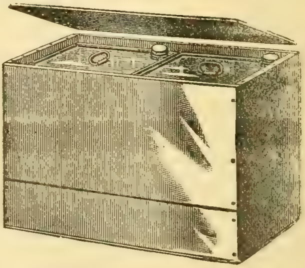


This is the favorite package for syrup; being square, it will pack in the smallest space. Our cans this year all have the 2 inch, lever-seal cap as recently described, and shown in cut opposite. They are warranted not to leak, which is more than you can say of home-made cans.

Price, 1-gal. square cans, with lever seal, $9.00 per 100; 6 in a box, 80c per box; $7.50 for 10; 10 in a box, $1.25 per box; $11.50 for 10.

½-gal. cans, 2-inch, lever-seal cap, $7.50 per 100.

¼-gal. cans, 2-inch, lever-seal cap, $6.50 per 100.



FIVE-GALLON SQUARE CANS.

These are largely used for storing and shipping honey, and for that purpose there is nothing better. Many also use them for syrup, as they cost less per gallon. They are also furnished from Medina with 2-in., lever-seal cap, or 1½-in. screw cap as preferred.

PRICE LIST.

5-gal. cans, 20 in a box, @ 26, $5.20.
5-gal. cans, 2 in a box, 70 c; 10 boxes, $6.50.
5 gal. cans, 1 in a box, 45c; 10 boxes, $4.00.

The A. I. Root Company,
Medina, Ohio.

CONVENTION NOTICES.

The annual meeting of the Ontario Co., N. Y., Bee-keepers' Association will be held at Canandaigua, N. Y., Jan. 29, 30, 1897. A cordial invitation is extended to all interested.

RUTH E. TAYLOR, Sec., Bellona, N. Y.

The Illinois State Bee-keepers' Association will meet at the State House, Springfield, Feb. 24, 25 1897. The State Farmers' Institute and also the State Live stock Breeders' Association meet at the same time and place. The Legislature will then be in session, and we hope to have such a showing, and such an influence upon it as to secure the passage of a bill that will put an end to the adulteration of honey in our State — the greatest evil that exists, to the detriment of bee-keepers. The railroad rates will be announced later. Good meals can be secured at 25 cts. Program later. J. A. STONE, Sec.

Bradfordton, Ill.

KIND WORDS FROM OUR CUSTOMERS.

I am very much interested in Anderson, the bee-keeper. C. C. L. DILL.

Dillburgh, Ala., Dec. 29.

Have Rambler write another story when this one is done. We like it very much. F. C. FULLER.

Montague, Mass., Dec. 21.

GLEANINGS is indispensable in my home. The children are interested in the story of Fred Anderson, and I find instruction in bee culture and gardening. I expect to be a subscriber as long as I live. You have my very best wishes for your future success. GEO. W. GEASLEN.

Oakland Mills, Md., Dec. 28.

Friend Root:—I have been thinking of writing you a letter the past year or so, and tell you what GLEANINGS has done for me, or helped to do. Your good talk first set me to thinking. I first had a few stands of bees, about 19 years ago, so I wanted a bee-journal. Mr. Muth advised me to take GLEANINGS. I did, and have never regretted it. I think I have missed getting only one number in all this time. I expect to take it as long as I am able to read. When I commenced to read it I was an unbeliever, and cared for nothing but worldly gains. I became interested in the Home Papers, and read all of them; and between times I would read the Bible, and so got to going to meeting, and finally joined the church, and am trying in my poor way to serve the Master. Brother Root (for I do want to call you "brother"), I have not told you *all* that I can thank GLEANINGS for. When I first began to read it (I am sorry to say) I was addicted to strong drink, and a perfect slave to tobacco. I have been fighting the saloon with all my might for the last 12 years; and if the Lord spares me until the 17th of April next it will be 5 *years* since I tasted tobacco in any way, so I can thank the Lord and GLEANINGS that I have conquered the two great evils of man.

May God spare you many years that you may go on with your good work. MAD. TALBERT.

Morristown, Ind.

8 QUARTS Best Black INK $1.

Send 6 cents for ½-PINT sample.

Handy Mfg. Co., 432 Lafayette Ave., Detroit, Mich.

A Large Book Free!

To every new subscriber who sends us $1.00 we will send him our journal, **Gleanings in Bee Culture,** one year, and the book by A. I. Root, containing 190 pages, the size of this, entitled **What to Do, and How to be Happy while Doing it,** postpaid. The regular price of this work is 50 cents. If you prefer, the journal may be sent to a friend, and you can keep the book for yourself.

THE A. I. ROOT CO.,
Medina, O.

Bee-hives, Sections, & Bee Supplies
AWAY DOWN.

Queens and bees for 1897 at bottom prices.
Write for catalogue and prices.
CHAS. H. THIES, Steeleville, Ill.

Wants and Exchange Department.

Notices will be inserted under this head at one-half our usual rate. Advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 c. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED. — Printing-press, photograph outfit, camera, magic lantern, phonograph, graphophone, music box, and books.
J. MCQUEEN, Baltic, Ohio.

WANTED.—A young American man would like a position in some western apiary. Had 2 years' experience. Would prefer a good chance to learn rather than first-class wages Can give good recommend. A. E. FORD, Fitchburg, Mass.

WANTED.—To exchange one Root's make section-machine (in fine order) for band-saw or offers.
THE GEO. RALL MFG. CO., Galesville, Wis.

WANTED.—To exchange second-hand band instruments, bicycles, etc., for type-writer, comb honey, bee supplies. P. L. ANDERSON.
Miller, Nebr.

WANTED.—Canvassers to solicit orders for my permanent crayon portraits. Good wages assured. Write for particulars. W. A. BALDWIN,
Portrait Artist, Medina, Ohio.

WANTED.—To exchange 60-lb. cans in good order, at 25 cts. each, delivered, for comb or extracted honey at the market price.
B. WALKER, Evart, Mich.

WANTED.—To exchange Kodak, rifle, or bicycle for foot-power saw, condition no object.
ROBERT B. GEDYE, La Salle, Ill.

WANTED.—To exchange buckwheat extracted honey for a good 12-inch foundation-mill with dipping-tank, etc. Single man with some experience with bees and farm wanted.
W. L. COGGSHALL, West Groton, N. Y.

WANTED.—To exchange game hens for A. I. Root's bee-book, Doolittle's bee-book, L. C. Root's bee-book, ferrets, gold-fish, or Italian queens.
C. A. BUNCH, Nye, Marshall Co., Ind.

WANTED.—To exchange nursery stock for clover seed. T. G. ASHMEAD NURSERY,
Williamson, N. Y.

WANTED.—To run an apiary the coming season, by a young, experienced, and practical bee-keeper, for wages or on shares. Plenty of references given and wanted. N. E. BOOMHOWER,
Gallupville, Scho. Co., N. Y.

WANTED.—A location for a custom saw and feed mill. W. S. AMMON, Reading, Pa.

WANTED.—A situation in an apiary and fruit-growing farm. Age 20; had five years' experience in bee-keeping. J. W. FURMAN,
Box 106, Shamokin, Pa.

WANTED.—To exchange a Gormully & Jeffery ladies' wheel in A1 repair, and a Monarch gents' wheel that is strong and serviceable ($80.00 for both wheels), for nice white extracted honey.
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DR. PEIRO, Specialist.
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Honey Column.

CITY MARKETS.

San Francisco.—*Honey.*—Fancy white, 10@11; No. 1 white, 9@10; fancy amber, 7@8; No. 1 amber, 6@7; fancy dark, 5@6; No. 1 dark, 4@5; white extracted, 5½; amber, 4¼@4½: dark, 2¾@3; beeswax, 24@25. The demand is not active for honey nor beeswax, but stocks very light.
Henry Schacht,
Jan. 10. San Francisco, Cal.

Chicago.—*Honey.*—Fancy white, 13; No. 1 white, 12; fancy amber, 11; fancy dark, 10; No. 1 dark, 9; extracted, white, 6@7; amber, 5@5½; dark, 4@4½; beeswax, 26@27. Demand not very active. Stocks light.
S. T. Fish & Co.,
Jan. 21. 189 South Water St., Chicago, Ill.

Cleveland.—*Honey.*—Fancy white, 11@12½; No. 1 white, 10@11; fancy dark, 7@8; white extracted, 6@7; amber, 4@5; beeswax, 24@27. Honey is moving very slowly in our market. There seems to be but little call for it.
Williams Bros.,
Jan. 18. 80 & 82 Broadway, Cleveland, O.

Kansas City.—*Honey.*—Fancy white, 14; No. 1 white, 13@14; fancy amber, 12@13; No. 1 amber, 11@12; fancy dark, 10@11; No. 1 dark, 8@9; white extracted, 6@6½; amber, 5@5½; dark, 4@4½; beeswax 25.
C. C. Clemons & Co.,
Jan. 20. 423 Walnut, Kansas City, Mo.

Chicago.—*Honey.*— Fancy white, 12@13; No. 1 white, 10@11; fancy amber, 8@10; No. 1 amber, 7@8; fancy dark, 8; No. 1 dark, 7; white extracted, 5@7; amber, 5@6; dark, 4½; beeswax, 25@27. Very little activity in the market.
R. A. Burnett & Co.,
Jan. 19. 163 So. Water St., Chicago, Ill.

Boston. — *Honey.* — Fancy white, 13; No. 1, 11@12; white extracted, 7@8; amber, 5@6; dark, 4@5; beeswax, 25. Comb honey in fair demand, with good supply of No. 1; fancy 1-lb. cartons wanted. Good demand for extracted, with light supply of light amber and white. Beeswax in good demand, with light supply. We advise shipments.
E. E. Blake & Co.,
Jan. 20. Boston, Mass.

Albany. — *Honey.* — Fancy white, 12@13; No. 1 white, 11@12; fancy dark, 7@8; No. 1 dark, 6@7; white extracted, 5@6; dark, 4@4½ The demand for comb honey continues very slow, even at lower prices. There is some inquiry about extracted, but few sales yet. Ample stock on hand.
Chas. McCulloch & Co.,
Jan. 20. Albany, N. Y.

Minneapolis.—*Honey.*—Fancy white, 11@12; No. 1 white, 10@11; fancy amber, 9@10; No. 1 amber, 8@9; fancy dark, 7@8; No. 1 dark, 6@7; white extracted, 6@7; amber, 5@6; dark, 4@5; beeswax, 22@25. Market steady and quiet since the holiday season, and quotations nominal. Extracted is in occasional demand, and choice comb fairly well cleaned up.
S. H. Hall & Co.,
Jan. 20. Minneapolis, Minn.

Milwaukee.—*Honey.*—Fancy white, 12@13; No. 1 white, 11@12; fancy amber, 10@11; No. 1 amber, 9@10; white extracted, 6@7; amber, 5@6; dark, 4@4½; beeswax, 25@26. The demand for honey is not very brisk—market dull, sales drag, and values are hard to maintain; but we hope improvement may yet come. But honey is a luxury, and not everybody can enjoy it, even at low prices. We trust our next report may be more cheering.
A. V. Bishop & Co.,
Jan. 20. Milwaukee, Wis.

New York.—*Honey.*—Our market remains quiet and inactive for all grades of honey, both comb and extracted. There is quite a stock on the market, and unless we have a good spring trade some of it will be carried over. Fancy white, 11@12; fair white, 9@10; buckwheat, 7@7½; extracted white, 5@5½: buckwheat, 4; southern, 50 c per gallon. Beeswax quiet at 25@26.
Hildreth Bros. & Segelken,
Jan 22. 28 & 30 W. Broadway, New York.

Detroit.— *Honey.*— No. 1 white, 11@12½; fancy amber, 10@11; No. 1 amber, 9@10; fancy dark, 8@9; white extracted, 5½@6; amber, 5@5½; beeswax, 25@26.
M. H. Hunt,
Jan. 21. Bell Branch, Mich.

Philadelphia.—*Honey.*—No. 1 white, 9@10; fancy amber, 7@8; No. 1 amber, 7; No. 1 dark, 7; white extracted, 5¼@6; amber, 4@5; dark, 3¾@4; beeswax, 25.
Wm. A. Selser,
Jan. 22. No. 10 Vine St., Philadelphia, Pa.

Cincinnati.—*Honey.* — Fancy white, 12@14; No. 1 white, 11@13; No. 1 amber, 10@12; white extracted, 5@7; amber, 4@6; dark, 3½@4; beeswax, 22@25.
Chas F. Muth & Son,
Jan. 18. Cincinnati, O.

Denver.—*Honey.*—Fancy white, 11; No 1 white, 10; fancy amber, 9; white extracted, 5@6; beeswax, 25. There seems to be a little better demand for extracted.
R. K. & J. C. Frisbee,
Jan. 21. Denver, Col.

Extracted honey, fine linn, new crop; cheaper than the cheapest. J. B. Murray, Ada, O.

For Sale.—10 more 160-lb. kegs of buckwheat honey at 4 cts. per lb., f. o. b. cars. The lot at 3¾.
N. L. Stevens, Venice, Cayuga Co., N. Y.

For Sale.—6000 lbs. extracted honey, in new cans and cases, $375.00. Speak quick; who wants it?
Elias Fox, Hillsboro, Wis.

For Sale.—A carload of white extracted honey from basswood and willow-herb in 30-gallon barrels and 60-lb. cans. Purity and safe arrival guaranteed. Price 6½ cts.; in quantity, 6 cts.
Frank McNay, Mauston, Wis.

For Sale.—Ten barrels good white-clover extracted honey at prices to suit the times. Can put it up in any style of package desired. Write for price, stating quantity wanted. Send stamp for sample.
Emil J. Baxter,
Nauvoo, Hancock Co., Ill.

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J. F. Michael,
Greenville, Ohio.

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Lincoln, Neb.

THROAT AND LUNG DISEASES
DR. PEIRO, Specialist.
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CHICAGO. Hours 9 to 4

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New subscribers are what every journal most earnestly desires. As a matter of course, if the journal is good, most of the old subscribers will stay by it; but to get *new* subscribers, to get the journal into the hands of *new* men, that they in time may thus become old subscribers, is what every journal strives for most earnestly. To this end I make the following offers. For $1.00 I will send the **Bee-keepers' Review** for 1897 (and throw in the December, 1896, number, which is especially good) and the 50-cent book, "Advanced Bee Culture," or, in place of the book, 12 back numbers of the **Review** For $1.50 I will send the **Review** and a fine, tested, Italian queen—queen to be sent early in the season of 1897. For $2.50, the **Review** and 1000 No. 1 first-class one-piece sections. But, remember, these offers are only to those who are not now subscribers to the **Review**, and as a special inducement for them to try the **Review** at least one year.

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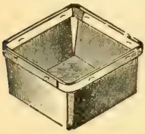

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If you buy honey, have it analyzed and see if it is pure. I have purchased chemical apparatus costing $300, for the special purpose of analyzing honey. Will give a written certificate that will stand in court. Send a 3-oz. bottle and $1.50 by mail to

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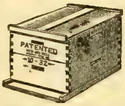

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GEORGE W. YORK & CO., 118 Michigan St., Chicago, Ill.

GLEANINGS IN BEE CULTURE

A Journal devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

Published by The A. I. Root Co.
$1.00 per Year Medina, Ohio.

Vol. XXV. FEB. 1, 1897. No. 3

STRAY STRAWS

FROM DR. C. C. MILLER.

A CORRESPONDENT wants a recipe for curing pork with honey. Who knows how?

EDITOR YORK says that, as nearly as he can discover, there were 1,200,000 pounds of honey put on the Chicago market last year.

THE *Progressive Bee-keeper* now flings at its mast-head the name of G. M. Doolittle as one of its editors. If that isn't *progressive*, I don't know what is.

THAT'S A SHABBY TRICK played on the readers of GLEANINGS by Walter S. Pouder, p. 67. He says, "See that wink?" and as long as I watched that girl she never winked once.

THE ROYAL AGRICULTURAL SHOW, to be held at Manchester next June, is beginning to stir British bee-keepers. A large number of prizes are offered to bee-keepers, ranging from $1.25 to $75.00.

IT'S ALL RIGHT to encourage the invention of new hives and new appliances, but at the same time it's a kindness to say to every beginner who has kept bees only one season, "Don't invent a hive just yet."

THIS WINTER is a bad one for me in one respect. I have 10 colonies wintering outdoors as an experiment, and the winter is so mild up to the middle of January that hardly any colony would be fool enough to die on its summer stand.

EDITOR THEODOR WEIPPL, after quite a discussion in *Bienen-Vater* as to the standing of the swallow, gives his verdict against it as an enemy of bees. On cloudy, rainy days its frequent visits to the hives mean death to some of the workers.

HONEY-AND-TAR COUGH-CURE. Put into boiling water a shallow tin dish containing a tablespoonful of tar. When the tar is hot, add a pint of extracted honey, and stir well for half an hour, adding to it a level teaspoonful of pulverized borax. Keep in a bottle well corked. Dose, a teaspoonful every 1, 2, or 3 hours, according to severity of cough.—*Dr. Peiro, in American Bee Journal.*

P. SCHACHINGER estimates that, when a colony of 20,000 bees stores a pound of honey a day, a colony of 40,000 will store 4 pounds. Twice as many bees, four times as much honey. [I believe that most of our American bee-keepers would consider this as a fair ratio.—ED.]

VERY DECIDEDLY a package of honey to retail at a dime is a good thing, provided we can get the bees to store as much honey in such light sections. For some time I've been advocating a section so light that it will be impossible for a dishonest grocer to sell it for a full pound. [See answer to another Straw on this subject.—ED.]

EDITOR VOGEL says the bee-larva is fed 12 times in 24 hours, or once every 2 hours. If there is never any superfluous food in a worker-cell, it seems a pretty safe deduction that worker brood can not be kept away from the bees longer than 2 hours without injury. Indeed, a much shorter time might hurt; for the 2 hours of some of the little chaps might be up just about the time of removal from the hive.

THE *San Antonio Express* reports that "experiments made with smallpox patients in Oaxaca, Mexico, show that, by administering honey diluted in water to smallpox patients, the pustules of the worst variety disappear, and the fever is immediately diminished." If that isn't a newspaper yarn it's worth knowing. [I saw this item, but jumped to the conclusion that it was a newspaper yarn, without any real foundation. If any of our subscribers can enlighten us, I should be glad to have them do so.—ED.]

THE *American Bee Journal* starts out with the new year by turning over a new leaf in the way of reform. When "ed" has the sound of "t" in the past tense and participle, "t" is printed. *Progressive* also talks about clipt and unclipt queens. Any movement to help our abominable spelling ought to be hailed with delight; but at first a good many will not be "shockt." [Yes, it certainly is a move in the able to meet the new spelling without being right direction, and the editors of GLEANINGS have seriously considered the same move. If Bro. York's subscribers do not protest, we may follow suit.—ED.]

"IT COSTS TWO POUNDS of honey to rear one pound of brood; and as a Langstroth frame is capable of containing two pounds of brood, I hold that one such frame of brood costs four pounds of honey." That's R. L. Taylor's notion in *Review*, and I'll pin my faith to it till something different is proved. And I suppose a frame of *drone* brood costs about five pounds of honey. [Nothing unreasonable or improbable in this; if, therefore, it does cost 2 lbs. of honey to rear a pound of brood, bee-keepers should be careful not to allow brood-rearing to go on out of season. The thrifty Italians will seldom if ever waste their energy in this way.—ED.]

IT IS A NEW THING to me that "bees will not work upon a section with full-depth cells as readily as they will upon new foundation," as stated by friend Martin, p. 43. I know that my bees *have filled* full-depth cells many a time before working new foundation, when the yield is poor, and they always commence on the full-depth cells first. If B. Taylor were alive I think he would deny that he used the leveler because he wanted shallower cells. Friend Martin, wasn't there something wrong with your full-depth sections? [We tested this matter pretty carefully in our apiary last summer, and *invariably* the bees took the drawn comb first, then afterward the foundation. What I mean by "drawn comb" is some that had been leveled down to cells about ⅜ in. deep. This seems to have been the experience of the great majority of other bee-keepers.—ED.]

PROF. COOK is getting to be revolutionary. He says in *Am. Bee Journal* that he thinks a swarm never goes with a young queen when she goes forth to mate. That in all such apparent cases it was merely a swarm issuing, and the queen accompanying or following. I wonder if that's another of the things we didn't know but thought we did. [Prof. Cook may be right, but it does not look reasonable—to me at least. Time after time I have seen young nucleus swarms go out with a young queen not yet fertilized. In some instances, according to my observation, they come back with the queen. Their very small quarters, I have thought, made them discontented; and when the queen went out they simply "lit out" with her, probably assuming that any quarters would be more agreeable than the ones they were having, so cramped up.—ED.]

A QUIET SMILE, I fancy, must spread over Prof. Cook's face as he notes how a late article of his is having the commendation of the bee-journals, in which he says the bees "digest" nectar, and then remembers what a howl was sent up when he made the same statement once before. It's not safe, professor, to get too much ahead of the times. I remember a man getting into trouble once because he said a bee-keeper ought to have legal control over the territory his bees occupied. He merely said it a few years too soon. [Yes, the renowned Galileo got a little ahead of the times, and they made him recant; but he was of the same opinion still. On the subject of digested nectar I do not think GLEANINGS ever took issue with Prof. Cook. While perhaps we did not indorse him at the time, we did later on. More and more the facts go to show that bees do actually prepare nectar in such a way as to make it more easily assimilated by human beings than ordinary sweets. In my own case, for instance, I can eat honey without any inconvenience; but I can not eat cane or maple-sugar syrup. This I know to be true of a good many others. I do not, however, think, as some do, that an admission that bees convert or change sweets is also an admission that sugar honey is a legitimate article of sale, for this reason: Raw nectar, as it is gathered from the flowers, is taken very slowly, a little at a time, and is digested by the bees. Syrup, as it is ordinarily fed to the bees, is taken so rapidly that they have little time to prepare it or digest it, therefore sugar honey should not in any sense be classed as honey. In talking with Mr. R. F. Holtermann, of the *Canadian Bee Journal*, this week, I found he was of the same opinion.—ED.

I'M DISCOURAGED—almost. You box my ears, Mr. Editor, on p. 42, for *persisting* "in saying the plan of selling thin sections is thievish," right after my saying, "I'm for thin sections just as much as you," and when I never for a minute thought it was thievish to sell them. [I should not be surprised, doctor, after we get through talking, that we shall be found to be actually on the same side of the fence. I do not think I misunderstood you; but unwittingly I made you, perhaps, stand sponsor for things which you did not; but in your previous Straw on this subject you say you are condemning "the thievish plan of selling light-weight sections for *full pounds*"—italics mine. It seems to me right here you are going on the wrong assumption that light weights are sold for *pounds* even generally; and you very properly say that retailers selling such for pounds are dishonest. Right here we surely agree, if not on all. But from the best information I can get, retailers almost universally sell by the *piece;* in fact, I do not believe that consumers or purchasers have any idea of the weight of a section. It is the price and not the weight that is prominent in their minds; hence I can not see *how* there can be any thing thievish about selling light-weight sections, for the average consumer, when he buys honey, does not have in mind a pound but a certain chunk of honey which he sees before him.—ED.]

DRAWN COMB.

ITS VALUE TO THE BEE-KEEPER; SPRAYING TREES DURING BLOOM PROHIBITED IN VERMONT.

By J. E. Crane.

I have noticed with considerable interest the discussion in GLEANINGS in regard to the use of drawn comb. I have used such comb more or less for the past thirty years, and do not think the estimates of its value are at all too high. There are two or three advantages: The bees will fill them quicker, commence working in the sections sooner, and, if a row is placed on the outsides of the clamp in the first part of the honey season, these will be filled and finished nearly or quite as soon as those filled with foundation in the center of the clamp.

A little care should be used to produce the best or fancy combs of honey with these drawn combs. They should all be cut down if they are more than one-half or three-fourths inch thick. If not cut down, the bees hesitate about sealing them; and when sealed they are very apt to have a soiled or dirty appearance.

After the honey is extracted from such combs in the fall I place them in clamps and put them on top of some hive so that all the honey may be taken out dry and clean by the bees; for if any is left, the next crop of honey when put into these cells is more apt to granulate.

I much prefer a knife for this purpose to melting them down, as the center of the comb is very liable to be quite to one side of the center of the section; and with a knife fitted for the work, one can cut down 200 per hour or more. I like to cut them down so as to leave the lower edge thinner than the upper part of the comb, so as to be nearly as the bees would build a thin comb. I like a Bingham & Hetherington honey-knife for cutting down, fitted for the work by first cutting the knife down or off nearly one-half its length, and beveling the edge square across like the sides. I have several thousand such combs cut down and carefully stowed away for next year's use.

Inclosed find copy of a law recently passed by our Vermont Legislature. Such a law should be on the statute-books of most of our Northern States. Spraying apple-trees while in bloom has done our bee-keeping much harm here in Vermont. The law reads:

> It is hereby enacted by the General Assembly of the State of Vermont:
>
> SEC. 1. If a person sprays or causes to be sprayed, or puts or causes to be put, any Paris green, London purple, or other poisonous substance upon fruit-trees while in blossom, he shall be fined not more than forty dollars, and not less than ten dollars.
>
> SEC 2. This act shall take effect from its passage.
>
> [Approved November 20 896.

Middlebury, Vt., Dec. 23.

[The comb-leveler put out by the late B. Taylor, so far as I am able to gather from those who have tried it, levels the comb down perfectly, clear across their bases. I do not see how a knife could do it as quickly or as well; but perhaps it does.

The Vermont law is brief and to the point. Michigan already has a similar law, and several other States are moving in the same direction. All it needs is for bee-keepers to properly instruct their legislators to give similar laws for every State. If a law were once on the statute-book it probably would never have to be enforced. Its moral influence would be sufficient to prevent spraying at the wrong time of the year—ED.]

DRAWN COMBS FOR SURPLUS-BOXES.

WORK IN THE BOXES BEGUN SOONER; PREVENTION OF SWARMING.

By F. A. Snell.

This subject of drawn combs has received much attention the past few years, and it is an important matter; and as I have had some experience along this line I will give some of my ideas. There is no doubt in my mind as to these combs being valuable to a certain extent. In each row of sections I very much wish to have about three of the central ones contain drawn combs, to be put on each hive run for comb honey at the opening of the surplus-honey flow. I find work is begun sooner than when only foundation is put in. All colonies will begin sooner, and with some a difference in time of a week or more. In others it will make a difference of swarming or no swarming for the season. The apiarist with long experience is aware of this. A point that no comb-honey producer should overlook is that of getting his bees started in storing in the supers; and every inducement should be made to this end so as to secure such. Once well at work in the boxes, more supers added at just the right time will do very much to prevent the swarming impulse, and thus secure the largest possible amount of surplus honey.

These supers, with the central drawn combs, should be put on a little before there is a probability of there being honey stored in them—say three or four days. Never be too late in doing this work, or the swarming-fever may have taken possession of the bees, and then it is too late; for swarm they then will if the honey-flow be a good one. These drawn combs should not be over 1½ in. thick, I think, as the outer ends of the cells should be made from new comb. My experience has been that comb honey is nicer where the comb is newly built, and I have often sampled that of the two and compared the quality. With me the new is always preferable in both comb and honey. I should not like to dispense with the central drawn combs, nor use such in all boxes.

One thing I have often observed, that I have no remembrance of seeing mentioned, is this·

Some combs in the supers are built very thick at base and side walls; others at other times will be made thin. I think the reason is this: During a good honey-flow the bees wish the wax secreted to go as far as possible in holding the honey being so freely gathered. At other times, as the flow for honey is slacking up after a good yield, the workers, having a very large amount of comb material at hand, and little need of comb, build the combs very heavy, seemingly to save the secreted wax. Such combs are often very heavy, and should be well cut down if used in the supers. I believe, as the queen is crowded for room at the opening of the honey-flow, that the bees remove some of the honey from the brood-chamber, and store it in the drawn combs in the supers; whereas the newly built comb is filled with newly gathered honey, which would account for the better flavor of the latter when from clover or basswood bloom. I have many times noticed that the first extracted honey taken in June was not as fine in quality as that of the second extraction. I account for this the same as above mentioned. The combs being built, some honey was moved from the brood-chamber below, stored the previous autumn.

I have read the articles on drawn combs with much interest, as they have from time to time appeared in our bee-periodicals.

Milledgeville, Ill.

[Yes, I believe that, if drawn combs were given soon enough before the bees began to feel the need of more room, it will go a long way toward solving that vexatious swarming problem. Combs should not, I think, be anywhere near 1½ inches thick. If any thing, they should be less than 1 inch, and ¾ would not be bad. All the bees require is a *good* start. —ED.]

DRAWN COMBS AND BAIT COMB.

ADVANTAGE OF DRAWN COMBS IN POOR SEASONS; A LARGE HIVE.

By E. H. Schœffle.

I was under the impression that the use of drawn combs in securing comb honey in "off" years was common; but from late articles in GLEANINGS I see that it is new to many. The fact that bee-keepers working for extracted honey have a crop when comb honey is a failure should have suggested this to every one. That "bait" combs are a good thing, has been generally admitted. In the season of 1895 the honey-flow was very strong up to March, and the sections had their combs well drawn out, and many of them full, when the flow ceased and the bees emptied them of their entire contents. During the remainder of the season the bees just about made a living. This left me two thousand sections filled with comb. This season I put all of these sections on. The flow was very poor, but the sections with drawn combs were all filled, while no comb was made in any of the other supers, nor did any of the other bee-keepers in the section (who make only comb honey) have a pound.

It has always been a question with me whether it pays to take comb or supplies from a strong colony to stimulate a weak one. Garfield once said that "a man who can't save himself isn't worth saving," and I sometimes think a colony of bees that has got too weak to help itself is not worth robbing a strong colony to feed it. To get drawn combs, the stronger colonies must be kept at comb-building, and in consequence no honey is secured from them; but for this I should like to have all bees at work filling and sealing over drawn combs. In a good season, when the bees "just roll in the honey," I don't see the need of a drawn comb, as every hive is then the equal of every other hive, and the bees are all of one mind and intent, and the favored bee-keeper has but to keep the "busy bees" supplied with empty sections as fast as the bees fill them.

Of one thing I am becoming more and more firmly convinced; that is, the conditions differ with the locality. A system that is a success in one section may be a dismal failure in another. For some time past I have been convinced that a large hive was best adapted to my section, and the past season I have tried a hive 18x18x36 inches. Over this I put one of equal size; and over that, one of half the size; and although it was an "off" year this hive did better than any hive in the apiary. Now, I don't intend to increase all of my hives to that size; but I believe we cramp our bees too closely, and I shall try a 12-frame hive the coming season.

Murphys, Cal., Dec. 26.

[I have given above three articles from bee-keepers who believe thoroughly in the use of drawn combs. I have more of them, and will give them later. In the mean time I should be glad to hear from others who have not yet written.

In the paper which I gave at the Lincoln convention, after enumerating some of the advantages of the drawn comb, some of which are given above, I expressed the hope that some Yankee genius would get up a machine that would make deep cell foundation or shallow drawn comb with cell-walls and bases as thin and delicate as the natural; but at the time, several expressed their doubts that any such thing could ever be made. For reasons that I will not now give, I did not then wish to make public the fact that we had *already* made in our establishment drawn combs, and had tested them during the previous summer in the apiary, and *that the bees accepted them at once.* This comb had cell-walls and bases nearly as thin as the natural, but the bases were flat. I showed samples of it to a few friends at Lincoln, and they could hardly believe that it had been turned out by machinery. Others, to whom we had sent samples a year ago, expressed the same feeling of surprise and pleasure. The bees not only accept this comb, but deposit honey in it immediately, draw it out and cap it over, and in some cases before they even *touch* foundation in sections next adjoining in the same super.

During all this time we have been working on larger machinery, but have hesitated about saying any thing in print until we could have some assurance that the new article was a commercial possibility. While we are not fully assured of it yet, we have turned out samples large enough to fill sections, and have sent them around to some prominent bee-keepers. We have received quite a number of letters, but will quote from only one of them. Here is what Hon. Geo. E. Hilton says:

> *Mr. Root:*—The sample of new foundation comb has arrived, and it is simply *superb*. I believe it will produce comb honey that can't be beat. I have great faith in it. If it will give us plump well-filled sections, as I feel it will, the price will be no object.
>
> Fremont, Mich., Jan. 25. Geo. E. Hilton.

This is only a sample of a lot of other letters of a similar import. At present we are able to turn out only samples to illustrate the possibilities of the future. For 10 cts. in stamps we will try to mail every applicant a piece of the comb, providing we are not flooded beyond the capacity of our outfit. In the mean time we are at work on more elaborate machinery. Until we know what this can do, I will not say any more; suffice it, that we *hope* in the near future to be able to supply, to a limited extent for orders, drawn combs with cell-walls as thin at the natural, having flat cell-bottoms. And right here we found where the cell-walls were deep and as thin as the natural, that flat bases were as good as the natural bases, and far easier for us to make.

I need hardly add that the presiding genius in the evolution of the new deep-cell foundation is none other than E. B. Weed, of foundation fame. He has been working on the problem for years, but it was only within the last two years that he struck the right track. That he should stick and hang to this will-o'-the-wisp of artificial comb in spite of repeated failures, lack of funds, in the face of discouraging editorials in Gleanings, and other journals—well, the man should reap the rewards of his labor. But more anon.

Perhaps some may think there is nothing in drawn comb, providing we can make it. I felt so too, at first; but when I saw how the *bees* felt about it, I changed my mind. Mr. Weed was given the free use of the whole apiary to test his new comb, and he demonstrated beyond a doubt that the bees would fill it with honey *immediately*, and at the same time join on their own comb, making the whole one homogenous mass; and the only way in which the artificial could be detected from the natural was by the cell bottom—the artificial being flat.—Ed.]

PRINCIPLES OF HONEY-CONSUMPTION; POSSIBLE APPLICATIONS.

SUGGESTIONS FOR SMALL TWO-OUNCE HONEY-PACKAGES.

By F. L. Thompson.

The contrast between the average man's conception of honey as a delicacy, and his obtuseness to the opportunity of buying it at the grocery, is really painful. Why is it? Does he not repeatedly crave, taste, and admire the honey-comb on the table of his country cousin? Is not the opportunity to "rob" a wild swarm hailed with rapturous delight by all who do not know a drone from a worker?

It is not entirely the fear of adulteration, for the average man swallows quantities of glucose without winking (and knows it too), in the shape of "maple" syrup. Without pretending to exhaust the subject, two considerations have a bearing on this point. One is the pertinacity with which said average man surfeits himself on the rare occasions when he does eat honey. The other is the smeary nature of honey itself. Practically, the housewife and the eater should, and perhaps do, handle honey dishes, knives, and spoons without much trouble, with a little care; but that is not the point; it is the *idea*, as the woman said of the mouse. Honey, in the popular mind, is very nice, but dreadfully sticky—not that many go to the trouble to think out all this, but a prejudice may be both subtle and forcible at the same time.

One remedy for stickiness would be to have honey in the form of small confections, as clean and easy to handle as gum-drops. "But the honey taste?" There's the rub. Still, it is worth thinking about.

Honey candy is a superior article, but not exactly honey. Granulated honey deserves consideration. True, it can not be molded like confectioners' sugar; but by watching a can of honey until it is seen to be in the first stages of granulation, then pouring it into shallow pans duly greased or oiled, or lined with paraffine paper, then setting away for a few weeks, it may be cut up when hard (employing some care, so as not to split it in the wrong place) into little nuggets, providing the layers are not over ½ or ⅜ inch thick. These may be wrapped in twists of paraffine paper (with a soft motto inside, perhaps), and set away in a cool place until disposed of. Most grocers keep candies. Possibly a special grater or masher would put hard granulated honey in the right condition to make chocolate drops.

This is not just the thing, either. It could be done in Colorado, but I do not know whether it would work in a moist climate. Then, too, some honeys do not granulate at all, and others do not granulate in the right way for that purpose. Unless coated with a foreign substance, the product would still cause sticky fingers.

Mr. F. Rauchfuss suggested to me lately that a field which has never been worked is some method of rendering granulated honey perfectly dry, like what is left on the bottom-board of a hive after the bees have robbed it out. This would make an article very easy to handle and ship, and perhaps extend its uses in confectionery. It might be done before granulation is quite complete in some such way as molasses is removed from loaf sugar.

Still, granulated honey does not produce just the same effect in the mouth as liquid honey. After all, the most important requirement is to fully satisfy the popular idea of honey. A few years ago I procured a large size of gelatine capsules, and experimented in filling them with honey. The results were not satisfactory. The gelatine produced a highly disturbing effect in the mouth by first breaking into brittle and glassy pieces, and then, after the honey was gone, dissolving with a coarse material flavor that quite obliterated the ethereal gusto of the honey. I then made some paraffine capsules by means of two sticks for molds, one a little larger than the other. These were too fragile, and left too much residuum in the way of chewing-gum. I had some thoughts of attempting to make capsules of honey candy, but gave it up as too difficult on a large scale, without the proper appliances. Moreover, such a confection gives too much prominence to the candy at the expense of the honey, for the honey disappears quickly and the candy slowly. What is wanted is a comparatively tasteless envelope, disappearing quickly. I have heard that "bonbons filled with liquor" are common in Germany, so I suppose there are such things on the market, which could be adapted to our needs by substituting honey for the liquor. Can it be done cheaply enough? Only a confectioner could tell.

Very likely machinery would be needed, placing it beyond the power of the bee-keeper to manufacture. Here is a chance for those Medina machinists. Think of the combination —"The So and So Company, manufacturers of bee-supplies and honey confections," which means that the power, the machinery, the honey knowledge, the direct communication with bee-keepers, and a peculiar interest in the the product, such as other manufacturers could not have, are all in one.

The plan of dividing honey into mouthfuls, however, does not preclude a possible surfeit. The mouthfuls may be too often repeated, and then—"No, thank you; honey does not agree with me," or, "I used to think there was nothing like honey, but somehow I have lost my taste for it." Some will say this is laying too much stress on a small point. I do not know about that. It is true, honey is like a staple to some people—Mr. E. T. Abbott, for instance, who eats it 1095 times a year; but do we not all know of families on whose tables honey may be placed every meal, without being touched oftener than once a month by about half the family? I know of two or three just such families; and from remarks of my customers I suspect the existence of many similar ones. Now, it may be just a notion of mine; but I suspect that, if once a day a little dab of honey, just a taste, were placed by the plate of each person, that little dab would generally be eaten. There is no dislike to honey, as a rule; it is just indifference; and if such individual portions would generally be eaten, it needs only a little arithmetic to show that the consumption of honey would be vastly increased. Just secure the fate of the average individual portion, and the mass of honey follows.

What are the motives which lead the average person to accept or refuse honey at the table? First, it must generally be regarded as a tidbit, or part of the dessert. To push it as a staple, I am satisfied, will lead many to reject it entirely. Its delicate aroma is best appreciated by small tastes, and is deadened by ordinary bites. Not only, to many palates, is it thus reduced to the level of ordinary food, therefore regarded with indifference, but these are generally the people on whose stomachs it "sits heavily" in large doses, creating a slight feeling of repugnance, thus sealing the fate of the next twenty-nine chances of honey consumption. Second, given this feeling of indifference as a result of too free previous indulgence, the choice between eating and not eating any food depends on the quantity in which it is offered, and the ease of obtaining it, say in the midst of an animated conversation. To particularly ask for something they do not care for is what most people will not do; and, even when presented, the sight of a great block of concentrated sweetness reminds one too vividly of the cause of his indifference. But to casually rummage around with a spoon, and unconsciously, perhaps, take a taste here and there of what is immediately before one, is the easiest thing in the world, and, at the same time, the best remedy for that indifference in the case of honey; for in this way it gets a chance to reassert its superiority by the free play which only leisurely tastes can give its elusive flavor. But the individual portions must be small, or these advantages are lost. It is not the bulk of honey eaten at one time that tells, but the frequency with which it is consumed. If at the table there are any persons who eat honey as they do molasses, they can ask for more. But these people, when they become bee-keepers, should not lay down the law for all others. I don't believe I could survive a continual diet of corn bread and bacon, even if some Southern people do grow fat on it.

[Since the above was put in type the following has come to hand.—Ed.]

I recently sent in an article, suggesting, among other things, that gelatine capsules be used for individual portions of honey. But a prominent firm of manufacturing chemists, to whom I wrote about the matter, replied: "The manufacture of empty gelatine capsules requires expensive molds and machinery, and it would not be practical for any one to make them unless in very large quantities—a million and upward." That settles that. Here is another suggestion: For little chunks of comb honey, it is possible that transparent adhesive paper (such as is used for patching leaves in books), so as to be capable of folding into a miniature *tight* carton, would be cheap and satisfactory, and would show off the honey something as gelatine would. It would certainly be very desirable to retain the feature of transparency in the package, no matter what it was made of.

Denver, Col., Jan. 19.

Concluded in next issue.

RELATIVE MERITS OF THE WIRECLOTH AND PORTER ESCAPES.

REQUIREMENTS OF AN OUTDOOR BEE-ESCAPE.

By F. Greiner.

The Porter escape has perhaps found more favor among our bee-keepers than any other form of escape, and still there are others that work very satisfactorily, and for some purposes are even better than the Porter. The latter is constructed on the spring and cone principle combined, and it is absolutely impossible for even a single bee to work back through it. This feature makes it most valuable when the escape is used on the hive between brood-chamber and full super. Our other escapes, with the exception of the trapdoor escape, which is in principle somewhat like the spring escape, except that the force of gravitation is made use of instead of the spring, are constructed on the cone and labyrinth principle; and as we increase the number of the different sets of obstructions the surer we are that no bees will work back.

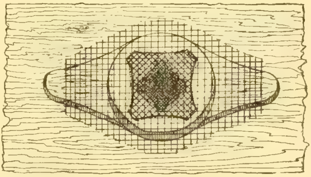
If we take a look at the under side of one of these escapes while in operation on the hive we find it is completely covered all over with bees, and, of course, a few of them are right on the apex of each flattened cone, and are liable to work in. When they have entered the cone, other bees from below take their places; some may also work in, and so on until finally the first chamber inside between two cones is crowded with bees. It is apparent that, the larger or roomier this chamber is, the better; for not until it is crowded with bees will some of them be very likely to occupy positions at the apex of the next cone, and have occasion to enter that also. After a while the second chamber will also be crowded with bees, and then a few bees will get into the full super.

It is, perhaps, not entirely settled how many consecutive cones it is necessary to use in the construction of one of these escapes to make it work perfectly on the hive. Mr. Dibbern claims his last bee-escape, illustrated in Nov. 15th GLEANINGS, does work to perfection, and perhaps it does. It is built with three sets of obstructing cones, and has large spaces between them, the entrance and exit holes being some 10 or 12 inches apart. It does not let the light in, and is for that season best adapted for use on the hive and not so well on a stack of supers. I have made up a few of these "Rapid" escapes, and shall give them a trial next season.

A few years ago I received, through Mr. Dibbern's kindness, an escape in principle somewhat like his "Rapid," but reduced in size to 5x7 inches. It was constructed in such a manner as to make it necessary for the bees to pass six sets of obstructions. It was indeed a labyrinth, and I don't believe a bee has ever found its way back through it. It has stood the test of several years perfectly, and I consider it in every way the equal to the Porter except in cost, and perhaps the same may be true of his "Rapid" escape, which, it will seem, is too expensive, taking more material in its construction, and requiring more time to make up.

Dibbern's four-point escape has served a good purpose, and I consider it to this day the best for use on a stack of piled-up supers; and if made roomy enough—that is, with enough space between the different cones, it can not be excelled for that purpose.

According to my idea, the requirements of an escape to be used out of doors on a stack are: 1. It must let the direct light fall in to attract the bees; 2. Its exits should be some distance from this place, admitting the light, say, at least three or four inches As the four-point Dibbern has a diameter of only three inches, its exits are only a little over one inch from the center hole; and when the bees from a stack of piled-up supers begin to escape, robber bees collect and try to gain admittance. The scent arising from the honey within is strongest right over this hole, and robber-bees pitch for it in a lively fashion, and soon cover the whole three-inch escape in a way to nearly prevent the bees from within escaping, some robbers even gaining entrance at the points. Now, if the exits were located some four inches distant from the center hole, there would be little or no trouble. The bees could then constantly escape, as the exits would be unobstructed.



As soon as this became apparent to me I thought of adding to the four-point Dibbern, which is a double-cone escape, another cone, locating the exits sufficiently far from the center to obviate the trouble spoken of.

The regular D. escape occupies only a bee-space in depth, and requires only a ⅜-inch board (with a bee-space on one side). Instead, I have taken a ¾-inch board, cut a 4-inch circular hole in center, for the four-point escape, and then with chisel, etc., I cut away half the thickness of the board in a double cone shape, as shown in the drawing. Over this I tacked wire screen, making the exits eight or more inches apart.

The now three-cone escape is all inside of the ¾-inch board, and is well protected against all injury. I have used such escapes ever since the escape has come into use, and they are just as good to-day as ever. I like the Porter spring escape for use on the hive, but would not want to be without my thus arranged four-point Dibberns.

I now want to speak of some difficulties arising from and connected with the use of bee-escapes, and I greatly desire that wiser men would give us a remedy for which, I am sure, we all should be very thankful.

When escapes are used on a pile of stacked supers, it will be noticed that the bees inside pass out the honey to the robber bees outside, especially if no bee-space separates them; but even in an escape like the one illustrated, the same thing occurs. Indeed, even bees that have come out of the escape are often followed up by robbers, and harrassed until they give up the sweet they are loaded with. Sometimes half a dozen bees can be seen at once, being fed by one loaded bee. This keeps up the excitement, and it is for this reason always best to wait until the bees have ceased to fly before carrying the honey to the house.

When escapes are used on the hive, another and much more serious trouble occurs. I refer to the capping being gnawed or perforated, principally of the central portion of the section of the super next to the escape. It does not occur in every instance, and much more so after the honey season has closed; it injures the looks of the honey very materially. I should be glad if I understood this matter. Who can tell us why bees act so in one case and not in another?

Naples, N. Y., Dec. 15.

PROTECTION FROM ADULTERATORS OF HONEY.

A VALUABLE AND SENSIBLE SUGGESTION.

By. Wm. G. Hewes.

I would suggest, as one means of protecting ourselves from the adulterators of honey, that we make an effort to have Congress place an internal-revenue duty on glucose of two or three cents a pound. The coming Congress will have to take steps for increasing the revenue, and it is not unlikely that, if the matter is brought to their attention, they will acquiesce in our wishes—especially if we are backed up by the producers of cane, beet, and maple sugar, all of whom suffer by having their syrups adulterated. As to the extent to which sweets are adulterated with glucose, we have but to refer Congress to the government chemists. Glucose, I believe, is valueless as food; is of no value in the arts, and is manufactured for swindling purposes only.

There are but few apiaries in this locality which do not have to be fed this season. Two of mine are among the lucky few, and one I have to feed. I see in the Nov. 15th GLEANINGS that Doolittle says feeding is not to his liking. Until I read that I always thought that feeding bees was an eastern bee-man's idea of supreme enjoyment, seeing how often it is recommended by them to extract all the honey and then feed sugar.

I have various kinds of feeders, but find nothing better than a lard-bucket or other vessel with a few bits of comb floating on the syrup. wooden feeders are apt to be leaky; and with the Miller feeder, unless it fits the super very snugly, many bees will be drowned. The "division-board" feeder, described in Doolittle's "Queen-rearing," is excellent; but instead of making it the width of a frame I make it three inches wide, and have floats in it.

I have also practiced elevating the front of the hive, and pouring in syrup at the entrance; but that was the most unsatisfactory of all methods, as so many of my hives leaked.

I have been painting the cracks in some leaky hive-covers with asphaltum, and think it a rather good idea where the hives are kept shaded, but not otherwise, for the heat of the sun would cause it to melt and run through on to the combs. Probably if it could be whitened it would not melt; but paint does not seem to stick to it, for some I gave two coats to is still a magnificent jet.

I should like to see how Mr. Frazier figures out a profit on ten-cent corn. Seventy-five bushels an acre is only $7.50. No great profit, even if it were clear gain. Take from that the cost of growing, harvesting, shelling, and sacking, and I can not figure out profit enough to pay taxes. Some people are so peculiar that, if the leaders of their political party tell them they are prosperous, they will promptly accept it as a fact, and proceed to take on fat.

The prospects for prosperity among California bee-keepers are not very brilliant. With half the bees in the country dead, and no honey gathered now for eighteen months, one would think the price would be good; but it is only four cents for best, and not ready sale at that.

Speaking of prosperity, the *American Agriculturist*, in its Western edition, after telling us what prosperous fellows the farmers of New York are, makes the precious statement that the trouble with the West is that the people are lazy, and have not banks enough!

Newhall, Cal.

[Your suggestion along the lines of throttling the glucose evil is the most practical one I have seen yet. Here is a chance for work for the new Bee-keepers' Union. If it is a fact that glucose is valueless as a food, and is of no use in the arts, and is manufactured only for the purposes of swindling, then I can not see why bee keepers, in connection with the producers of cane, beet, and maple sugar, can not, through their Members of Congress, some time in the future, have an internal-revenue duty placed on glucose at so high a rate that it can not be used for adulterating. We may do well to ponder this suggestion.—ED.]

SECTION SUPER WITH PATTERN-SLATS.

THUMB-SCREWS VS. WEDGES FOR PRODUCING SIDE COMPRESSION.

By C. Davenport.

Some time ago in GLEANINGS I described a super that I prefer, which is a case just long enough to take in four rows of sections, and deep enough to take in the section and pattern-slats, and yet allow a bee-space. These pattern-slats have no end-pieces, and in your footnotes you say that, without end-pieces, the pattern-slats are liable to get skewed, and then the openings in some cases will not come together in exact alignment, which makes them, "the openings," very much narrower.

I do not believe you understood what I meant; for with scalloped pattern-slats the separators drop down between them; or even without separators the follower and wedge will hold them in place, so that it is impossible for me to see how the openings can get out of exact alignment.

After a more extended trial of these supers the past season I prefer them to any others. They are superior to those having end-pieces on the pattern-slats in every respect, so far as I can see. Those thumb-screws which you advertised last year for the first time are decidedly better in every way, in my opinion, than a wedge is for tightening sections in the supers. I thought, when I first saw them described, they would be a good thing; and after using 30 supers that had them, the past season, I find they work even better than I expected them to. In producing section honey I regard it as very important that the sections be wedged up very tight sidewise; for if they are not, in this locality at least, the edges of the sections will be very badly stuck up with propolis, and the edges are the hardest part to clean; besides, propolis from the edges will often, when it is being removed, get into the cells of unsealed honey next to the edge. This injures the appearance of the honey, and does not improve its flavor, to say the least.

With one simple wedge it is impossible to tighten the sections much. I use two wedges for each super, and drive them quite tight with a hammer; but this is considerable work, and they are hard to remove when badly stuck up with bee-glue. Thumb-screws are better, and always right in place when wanted. When I got mine I put them into a keg of linseed oil to soak. This greatly injured them. It caused the threads to check and crumble off somewhat. I have since learned that, if I had put them into hot tallow instead of oil, it would have been a good thing for them.

TALL SECTIONS.

I notice that you seem to be in favor of changing the standard of size in sections for one tall and narrower. It would cost a good many—at least it would cost me—a good deal of money to change or fit all my supers for another size of section; and at the present low price of honey for even the very finest grades, I think it would be a good while indeed before I could get enough more from the sale of honey in tall sections than I would from that in standard-sized ones to pay me for making the change. But will honey in tall narrow sections sell more readily? Last fall I was in St. Paul and Minneapolis, where I sold about 2000 lbs. of honey in standard-sized sections. One day in Minneapolis I was in a large retail store, where I sold a large amount. They had some tall narrow sections that held about a pound. A man came in and wanted a few pounds. He was offered some in these tall sections. He refused them, and said there was too much comb and too little honey in them to suit him, and that he wanted no more of them. He took some in square sections which I had just sold them, and said there was more real honey in one of them than there was in two of the others. Of course, his was an extreme view of the case; but will the general public be fooled into believing that there is more honey in tall thin sections than there is in others of the same weight that are square and wider?

A person who seldom buys honey, or one buying a section for the first time, might do so; but regular buyers or users would not long think so.

Tall sections filled would, I believe, be much harder to handle without injury. It would require more foundation to fill them, and on this account they would be more apt to have fish-bone in the honey. It is claimed that bees will fill and cap these tall thin sections quicker than they will square ones. I have never used them, but I have strong doubts of this. If a swarm is hived in a shallow brood-nest containing less space than the regular eight-frame hive they may enter the supers sooner, and do more section work in any kind of sections during a short flow; but in that case the colony will be, and can not help being, "if there is only one flow," short in stores and bees for winter. On the other hand, if the flow is long they will not do as much section work; for, not having enough brood room, they decrease in strength before the flow is over. I am now speaking from much experience in this matter; and while shallow or double brood-chamber hives, especially in localities where there is a fall flow of honey that will answer for winter stores, can be very profitably used under the right management. I do not believe tall sections have much to do toward their success. If grocers want sections of lighter weight than 1⅞ wide gives, narrower ones can be used. Supers will not then have to be changed, and we shall preserve the standard square; but I believe it would be folly for us to try to suit grocers and dealers in all respects, for some of them would always want some changes made, which might be a large expense to the producers; and at the present prices of our product we (or at least many of us) are not able to stand any unnecessary expense.

Southern Minn., Jan. 2.

[If the wide separators run clear down between the pattern-slats, then the objection that I urged would not hold. Such an arrangement would be perfectly practicable. Thumb-screws may be a little better for producing compression. The advantage of the wedge is that it is inside of the hive, and out of the way, while the thumb-screws stick out beyond the sides of the super.—ED.

SQUARE VERSUS OBLONG SECTIONS.

COMBS NOT ATTACHED TO THE SEPARATORS.

By G. C. Greiner.

Ever since the one-piece sections have come into general use I have had an opportunity to make observations in regard to their practicability. The usual 4¼x4¼-inch section did not fit the hive I used. To accommodate my surplus-appliances, a section 4⅛x5x1¾ inches was necessary and desirable. First, it held as nearly a pound as sections can average; and, second, I greatly preferred the oblong shape. After these many years of practical experience the result is so different from Mr. Salisbury's experience, as set forth on page 17, that I am of the opinion the objections raised by that gentleman are in a great measure imaginary—not that I have the least doubt as to the correctness of his statement in regard to combs being fastened to the separators, but that there is another factor at the bottom of his trouble besides the oblong shape of his sections.

The difference between the width and height of the 4¼-in. square and his nearly 4x5 in. sections is so trivial that it seems almost impossible that bees would attach the one and not the other. Nature directs bees to build their combs plumb; and, guided by this impulse, they do their work in a way that will accomplish this object. In examining sections in their various stages of progress we invariably find them on both sides alike, drawn out and filled, or so nearly alike that a swinging one way or the other, by greater weight on one side, could not be caused. The only difference we always notice is in capping. The outside combs are on the outside, more or less behind the inside; but the weight of the cappings is of so little amount that, by this slight variation of weight, a comb would not be forced out of its perpendicular sufficiently to strike the separator and be attached.

As I have never used the 4¼x4¼-in. section I can not say how much better my bees would have done along this line of not attaching to the separators; but I can say that, in all of my experience in producing honey in oblong shape, I have not had enough sections made unmerchantable, by being attached, to fill a 24-lb. shipping-crate.

BUCKWHEAT SEASON.

The past summer can be recorded as one of the occasional exceptions—a season without buckwheat honey. When the buckwheat had reached its honey-producing stage, bees started in in good earnest, and bid fair to gather an abundant crop; but after a few days' work the cold wave struck us and blasted our hopes. Most of the time it was so cold that bees did not leave their hives, even in the middle of the day; and when warmer weather returned, buckwheat was so near its close that bees did not resume work in sections; consequently many unfinished sections were left on the hives. I have about 1000 drawn-out sections, many of them full-sized, perfect combs, all cleaned out by the bees, and stored away for next season. What seemed to be a loss last fall may prove a blessing in disguise in the shape of an increased honey crop next year.

Naples, N. Y.

TALL SECTIONS PREFERRED; NO TROUBLE WITH COMB BUILT TO SEPARATORS.

In GLEANINGS for Jan. 1, p. 17, Mr. F. A. Salisbury seems to have trouble by getting comb fastened to separators by the bees in drawing out the foundation. I have been using both the square and oblong section, and I find no more tall sections fastened to separators than square ones. I have used the Danzenbaker section, 3⅞ x 5 x 1¾, for two seasons, and I prefer them for more reasons than one. First, there is a better market for them, and that is one of the best reasons, as I make it to sell; and, again, I think the bees will enter a deep super sooner than a shallow. I think if Mr. Salisbury will use 1½-inch starters in his sections, put them in with a Daisy foundation-fastener and set his hives level, he will have no trouble with his tall sections. S. D. MATTHEWS.

Hamilton, N. C., Jan. 12.

TALL SECTIONS BEST; NO TROUBLE FROM COMB BEING BUILT TO SEPARATORS.

In GLEANINGS for Jan. 1, Mr. F. A. Salisbury raises an objection to tall sections because the bees fasten the comb to the separators more than they do in the 4¼x4¼ sections. I have been using a section 4x5 for a number of years, alongside the 4¼ section, and I have not discovered any perceptible difference in regard to the bees fastening the comb to the separator of the tall section more than to the 4¼ section. I am like Mr. Doolittle—I think they are more symmetrical in appearance; and I have found that, where the two sections have been brought into competition with each other, the tall section sells first. In our market here I do not know that they bring any more; but I know that the tall section is the more easily disposed of; and the fact that more of them will stand over a given space is a point in their favor.

Delhi, Ill., Jan. 23. H. D. EDWARDS.

MR. DANZENBAKER N THE TALL SECTION.

My attention has been called to Mr. Salisbury's objection to tall sections on page 17 in GLEANINGS. The veteran Doolittle, who is always right, has more than answered him in the next column. take exceptions to his idea that it is the bees that twist his foundation out of line. I had a like trouble with some 1⅜-in. sections that would not stay square. They would spring or draw out of square, and bind the foundation and cause it to wind out of line. I overcame that entirely by seeing that the sections were folded true, and kept so by wedging them in the super before and after the foundation was put in. I also set the foundation so that, if the section was out of plumb, it would not press against the foundation when the section was squared up.

Washington, D. C. F. DANZENBAKER.

TALL SECTIONS NO ADVANTAGE OVER THE SQUARE.

Referring to tall sections I will say that for ten years I used a section 5¼ high and 3½x1⅞, which holds about the same as the 4¼x1⅞; but they cost me from 50 cts. to $1.00 more per 1000, and had to be made to order. I was sometimes troubled to get them in time, so I am now using the 4¼ section. I don't think my honey in the tall sections sold for a larger price than honey in square sections; at any rate, I never got a large price for it, and commission men who have sold it never told me it sold quicker. I was not troubled much by having foundation fastened to separators if hives were kept level.

W. J. AUSTIN.

Chittenango, N. Y., Jan. 12, 1897.

IN FAVOR OF THE TALL SECTION; A PRACTICAL SCHEME FOR USING THEM IN THE REGULAR DOVETAILED SUPER.

I see in a footnote you want opinions as to what kind of sections bee-keepers would rather use. I for one would rather use a tall section that would weigh just 1 lb. as nearly as possible, and I have thought of a way in which the tall section might be used on the eight-frame hive; but I have not tried it, and it might not work as well as I think. My arrangement is something like this: Instead of there being a rim on top of the super, have the rim on the bottom (not nailed fast); then to this rim nail the bottom-bars of the section-holders, the bottom-bars to be an inch longer than they are now; a groove cut out of the rim on the bottom side to admit the bottom-bars, and have them nailed fast to rim; then use two followers and wedges the size the section ought to be. I haven't figured out, but it ought to be so as to give more elbow-room in the super. The two wedges ought to be square pieces at least ¾ of an inch square. This would give a chance to take a section out as soon as finished before it is travel-stained. WM. KERNAN.

Ringdale, Pa., Jan. 7.

[Your scheme is perfectly practicable, and we can adapt supers in that way if so desired. Later on we may show a cut of the plan. As the standard tall sections are 4x5 inches they can be used crosswise of the regular 8-frame super (which is 12⅛ in. wide) without any waste space to fill up. Of course, the hive should be perfectly level in that case.

It would seem, from the letters above, that there is no very great danger from combs sticking to the separators. I doubt not that there will be many who will want to try a few of these tall sections on their dovetailed hives, and yet feel that they can not afford to buy new supers. To accommodate all such we have arranged to supply a rim deep enough and large enough, when put on the bottom of a regular 8-frame section-super, to take in 4x5 sections with supporting-slats.—ED.]

PRODUCTION OF COMB HONEY.

By Adrian Getaz.

This article is written exclusively from a comb-honey producer's standpoint; and if some of the assertions made seem exclusive, it must be remembered that they apply only to the conditions peculiar to comb-honey producing. If there were no swarming, the management would be the simplest thing in the world. Just put on enough sections at the right time, and take them away when they are full. That would be all. But with the swarming, the difficulty begins; so, after all, the comb honey-producing question resolves itself practically into a swarming-management question.

NORTHERN MANAGEMENT.

What I mean by this is the management adopted and advised by all or nearly all our leading writers, and suited to what I may call the Northern States, including Canada, the Eastern States, and the Central Northern States, such as Ohio, Illinois, etc. The characteristics of the honey-flow of that region are: A moderate flow from the winter until the main honey-flow, just enough to get the colonies in good shape; then follows a heavy flow of only a few weeks' duration, the swarming taking place just at the beginning of it.

Two methods of management have been successfully practiced under these circumstances. The first consists in hiving the swarm on the old stand, and having as many as possible of the bees there; and, by contracting the brood-nest, compel the bees to store most of the honey in the sections. The second consists in removing or caging the queens at the beginning of the main flow, and not returning them until three weeks later. The queen-cells raised during that time are to be destroyed.

SOUTHERN HONEY FLOW.

There is a fundamental difference between the northern and the southern region as to the character of the honey-flow. In the northern region, as described above, the swarming is followed by only a few weeks (six weeks at most) of comparatively heavy flow. Here, and in all the South, we have, after the swarming, a period of from two to three or even four months of moderate and very irregular flow; that is, not a continuous flow; and what makes it more difficult is that we can not tell in advance which sources of honey are going to yield and which ones will not; so it is necessary to keep the colonies as strong as possible during the whole period. This necessitates prevention of swarming, or, at least, of increase, and also the least loss of brood possible.

And what I say here of the South applies more or less to the Northwestern States where the surplus comes from alfalfa and sweet clover, and to the Pacific Coast.

TWO PRACTICAL CONDITIONS.

Many processes of preventing swarming have been successfully practiced, but yet can not be advised under the circumstances now considered. The first condition is, as already stated, the least possible loss of brood. The second is the least possible work for the apiarist. This throws aside all the processes requiring to do certain things when the colonies are in a certain condition; for instance, when they are beginning to build queen-cells. The reason is obvious. To know when a colony has reached the proper point would require at least two inspections every week. Think of the work in an apiary of 300 colonies, besides the aggregated loss of brood and honey caused by the disturbance! What is to be done must be done in a wholesale way, at a definite time, say, for instance, at a certain time of the year, or when the swarming takes place.

After some seven or eight years of experimentation with all sorts of methods and apparatus, I recommend the two following processes.

FIRST PROCESS.

Discourage swarming by all possible means. Have the brood-nest of sufficient size; put on the supers in due time; use all the drawn comb you can; don't keep any queen over two years old, etc.

A point here needs insisting upon. The first super ought to be given early enough to prevent crowding in the brood-nest. On the other hand, the excess of room given tends to lower the temperature of the hive and frequently prevents the working of the bees in the super—at least the building of comb, especially during the night. A good deal has been written concerning the necessity of protecting the brood during the early spring, but nothing or next to nothing concerning the necessity of keeping the first sections given sufficiently warm, during the first part of the season. Yet I consider the last point as important as the first; and I do not hesitate to say that, in most cases, when the bees do not enter the supers readily, it is because they are unable to keep them warm enough to work these successfully. Notwithstanding, a certain number of colonies will swarm. Return the swarm and remove the old queen at once. Take out all the queen-cells but one, and allow the colony to requeen. This does not cost any thing; the cells are there, the young queen is, as a rule, preferable to the old one, and the time without a laying queen is reduced to a minimum. A queen caged or removed can not be returned before 15 or 20 days or she would swarm again; and even then a certain number would reswarm. Raising queens in advance would necessitate the making of nuclei, and the draft of bees and brood from the colonies to make the nuclei would damage them more than the loss of brood by the above process. Use the removed cells to replace as many of the oldest queens possible, or those otherwise objectionable, thus reducing the number of colonies liable to swarm. It is needless to say that the use of queen-traps will reduce the above work to a minimum.

SECOND PROCESS.

Where bee-paralysis exists I prefer to requeen the apiary throughout, though I have not always had the time to do it. Requeening in the very early spring is objectionable. In the first place it is not absolutely certain that it would prevent swarming in all cases. Buying queens in Florida costs something. Raising queens very early entails a considerable loss of brood and bees to the colonies, and one bee at that time of the year is worth ten in the middle of the summer. The raising of queens by the nucleus process takes too much work anyhow when one wants only queens for his own use. I prefer to wait until the time, or near the time, of swarming. If a few colonies swarm before I am ready I treat them as stated in the preceding paragraph. To reduce the loss of brood to a minimum I unqueen at first only one colony out of six or seven, perhaps eight, and I use their cells to requeen the others, removing the queens only when putting in the cells. I wait as long as possible to do the final requeening, partly to reduce the loss of brood, partly because the cells not well advanced are not always accepted. It seems that an immature cell is to the bees nothing but a lump of strange wax, which they proceed to tear down, while an advanced one has already the scent of a queen, and is accepted as such.

Some precaution is to be taken in putting them in. Sometimes the bees spoil them in trying to fasten them to the combs. Perhaps the best would be to use some kind of cell-protectors. To facilitate the operations, entrance-guards ought to be used so as to prevent the loss of a swarm in case some queens happened to emerge before the time anticipated. It is well to see that queen-cells be not started between the time the cell is put in until the young queen emerges, or, rather, to destroy them. None will be begun after she is out, or, at least, very seldom.

INFLUENCE OF BEE-PARALYSIS.

As I have often stated, bee-paralysis exists here, and is a serious drawback to the apiarist. The malady damages in several ways. First, by reason of less activity in the bees, which, as the malady advances, become more and more paralyzed; secondly, shortening of their life; and, thirdly, a failure in the laying powers of the queens. This takes place during the second year of their life, or even sooner. In such cases they are generally superseded; and with the superseding, swarming takes place. The result is a great excess of swarming besides some loss of brood during that time as a result of the failure of the queen. Very often queens disappear entirely without any apparent cause.

Occasionally the bees fail to requeen, either because the colony is too small or because the sick bees lack the necessary activity. In that time, and under such circumstances, the colony enter into what some writers have called the second stage of the disease. One of its characteristics is that very young bees, even just emerged, show already the symptons of the disease.

The only way I can account for it is that, when the queen has reached that degree of sickness, her eggs contain already the germs of the disease. This supposition is not improbable. The disease of the silkworm is produced by a bacillus almost identical to the one producing bee-paralysis; and in the silkworm the disease is transmitted from one generation to the next, through the eggs of the female moth.

Any careful reader of the bee-papers may have noticed that, while our leading writers do not think that bee-paralysis is such a terrible thing, reports come now and then from honey-producers of disastrous results. This corroborates the above supposition. Most of our leading writers are queen-breeders, and renew their queens all the time, which results in vigorous and healthy queens, or, rather, queens that may barely have the germ of the disease, while the honey-producers leave the requeening to the care of the bees, resulting in queens reaching the age of two or three years, occasionally more. My own experience is the same. By frequent requeenings, I find that I can keep the disease within comparatively narrow limits, but not cure it completely, showing that other ways of contamination exist also.

CONSTRUCTION OF QUEEN-CELLS.

From ages past until now it has been admitted that, when the bees were too crowded, they decided to swarm, and constructed queen-cells to save the old colony from being left queenless. That last part of the program is a mere supposition. I doubt whether the swarming bees care a snap what becomes of the old colony.

Some four years ago I acquired, during my experiments, an entirely different opinion on the subject—an opinion that the following years have fully confirmed. The construction of queen-cells is due to an excess of larval food. It takes place when three conditions exist: 1. A honey-flow which furnishes the materials; 2. A considerable number of young bees acting as nurses, and preparing the food; 3. A diminution of the brood to be fed, that is, not enough to consume all the food prepared.

The diminution of brood to be fed may be caused either by the lack of empty comb to receive the eggs or by the failure of the queen to lay enough. A young vigorous queen will lay all the eggs (if she has room enough) that her colony can take care of. That is the reason why, unless decidedly cramped for space, a queen of the year's rearing will seldom swarm, or, to put it properly, her colony will not often construct queen-cells.

CONFLICT BETWEEN QUEEN AND QUEEN-CELLS.

By the time the queen-cells are sealed, or soon after the old queen realizes (probably because the sealed queens begin to have the queen's peculiar odor) that she has rivals, she attempts to destroy them; but the bees instinctively prevent her from doing so. The excitement keeps growing worse and worse, and finally culminates in swarming. If two or more queens are in her presence a fight ensues, and only one is left; but when one queen can not destroy these contained in the queen-cells, she is sure to swarm, or, rather, the racket she raises induces swarming, and the whole outfit goes out together. A caged queen placed in a colony has the same effect as a queen-cell, as I found out by an involuntary experience myself. Some German writer has advised that very process in order to compel a colony to swarm.

If the cells are where the queen can not be aware of their presence, in an upper story, for instance, no swarming will take place, showing conclusively that the jealousy of the queen against the cells is the cause of the swarming.

Knoxville, Tenn.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N. Y.

HOW TO BUILD UP A REPUTATION.

Question.—Is it any advantage to put your name and address on cases of honey which are to be shipped on commission to commission men? If so, what?

Answer.—Each year, from 1871 to 1877, I sold my honey to a dealer in Syracuse, N. Y., delivering it there by wagon, so that it always arrived in first-class condition. As the merchant always took all the honey I had, both extracted and comb, together with all the dark honey, I considered it a good thing for me, and would still think so if I could thus sell my honey now; but death removed him in the early part of '78; and although I have several times tried to have other parties in this city take his place, yet not one was willing to do so, as regards buying and selling honey. However, there was one thing I did not quite like, which was that he insisted on my bringing the honey to him in cases having nothing on them except the gross weight, the tare, or weight of the crate, and the net weight of the honey. When I asked him the reason for this he showed me stencil-plates bearing his own name and address, and said, "I put my name and address on every case of *really fine* honey which I buy, so as to build up a trade in honey, thus securing a name second to none; for with all inferior honey I leave this stencil-mark off, so that none but the very best bears my name, and thus I am gaining a reputation year by year which is growing constantly to my benefit. If I allowed you to put your name on the cases it would not help me a bit; and as long as you sell to me each year it could be of no benefit to you." After a year or two I saw that his line of reasoning was correct; for every year gave him a larger range of customers, until, at the time of his death, he handled honey by tons to where he handled it by the ten pounds when he began. After his death I began shipping honey on commission, and wrote my commission merchants, asking them if they would allow me to put my name and address on each case. To this they objected; but a few said they had no objection to my putting my name on the sections inside the case if I wished to do so. I accordingly procured a rubber stamp with the words "From G. M. Doolittle, Borodino, N. Y.," on it, as well as a dating-apparatus which would remain good for ten years. I could now, in a moment, put my name and address on any thing I wished, from a postal card up to a bee-hive, and give the date of so putting on, if desired. Outside of the first object, as originally intended, I have found this stamp of great benefit to me in many ways, and I would advise everybody who reads this to procure such a stamp and see how much in time, money, and temper it will save them. I believe The A. I. Root Co. can furnish such stamps to any who may desire. To return:

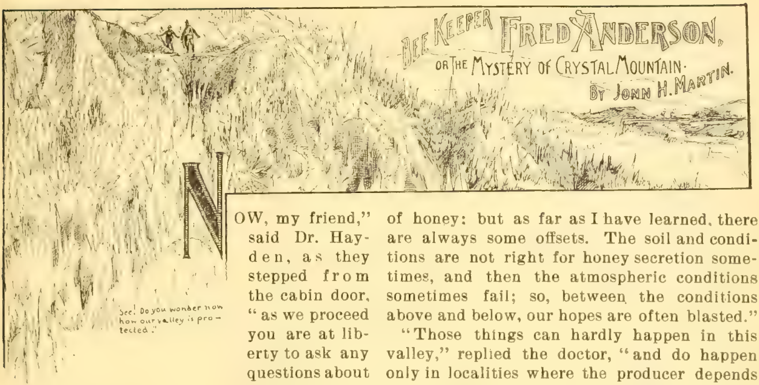
Taking the hint given me by the honey-merchant, I put my name on only all really nice honey, and let all "off grades" go without it. And right here I wish to throw in a suggestion. We have heard much in the past from commission men and others about some sending them honey, putting all sorts of inferior honey into the same case with fancy honey, putting the fancy on the outside, and the inferior in the middle of the case where it would not be seen till the case should be opened. I never blamed commission men for being out of patience with those who would work against the interests of every one concerned, enough to do this thing; and the suggestion I would make is this: If you will procure a rubber stamp, and use it as did the honey-merchant spoken of above, no one will ever have a chance to say aught but words of praise for the even appearance of all honey which you put in any case. To return again:

After the sections were all in the shipping-case, and before the cover was put on, it took only a moment or two of time to stamp all the sections in that case, thus letting the consumer know by whom such fine honey was produced, while the commission merchant received all the credit with the retailer, unless, perchance, such retailer desired to deal direct with the producer. And thus it came about that I got many letters from different parts of the country reading something like this: "I purchased of Mr. So and So a splendid article of honey bearing your address. As it gives the best of satisfaction, for how much could you send me —— cases of such honey?" And so it has often come about, that, after my honey was all disposed of, I would have many calls for honey which I could not supply, but which gave me a "leverage" for the next year. So it will be seen that the plan of a shrewd merchant has not been lost, even if he did keep me where he wished while he was living. Why I said in the fore part of this article that I should be glad to sell as I formerly did was that there is an advantage in selling the whole crop to one person, for cash on delivery, not gotten by selling the crop out in small lots, or by shipping it on commission. All will think of some of these advantages, without my enumerating them. However, it so happens that the most of the large producers can not sell to one party each year, and for this reason I give the above plan, as I believe it to be a good one, and just the one to work upon when we can not sell our whole crop to one person, or all of it in our home market. And by this plan many are induced to eat honey who do not generally buy by the advertising done by those who are pleased by a really nice article of honey. It takes all of these little kinks as going toward a whole to make successful bee culture.

BEE KEEPER FRED ANDERSON,

OR THE MYSTERY OF CRYSTAL MOUNTAIN.

BY JOHN H. MARTIN.


See! Do you wonder now how our valley is protected."

"NOW, my friend," said Dr. Hayden, as they stepped from the cabin door, "as we proceed you are at liberty to ask any questions about this little valley that the surroundings may suggest."

"Well, doctor, you know the old adage, 'Give a Yankee the conversational pump-handle, and he will pump you dry;' and if my seeking for knowledge depends upon my questioning ability, then I will commence by asking you, what is the length and breadth of this valley?"

"A very proper question," said the doctor, "and a very natural one from a bee-keeper who is looking for a profitable location. This valley is two miles in length, with an average width of half a mile."

"And you have an apiary here, and propose to largely increase. Now, don't you find one square mile too little space for profitable bee culture, or do the bees find pasturage on the mountains beyond?"

"There is no flora on the summits beyond. This one square mile contains flora enough for a very large apiary."

"Why, doctor, if you can succeed with so many bees in such small area you are indeed progressive. The best locations I ever knew were considered crowded had they twenty to the square mile, and even then only one season in five would produce a full honey crop."

"That is so, Fred, where the producer depends wholly upon natural pasturage; but living as I am in this valley, with the unlimited privilege to do as I please with my surroundings, I have planted only such vegetation as will produce honey in the greatest abundance, and the results are astonishing. Now, instead of figuring how many colonies a square mile will sustain profitably I figure from the other end of the problem, and am trying to find out how many square *feet* will sustain a colony."

"I can readily understand," said Fred, "that a constant succession of honey flora, nearly all the year round, would give an immense amount of honey: but as far as I have learned, there are always some offsets. The soil and conditions are not right for honey secretion sometimes, and then the atmospheric conditions sometimes fail; so, between the conditions above and below, our hopes are often blasted."

"Those things can hardly happen in this valley," replied the doctor, "and do happen only in localities where the producer depends upon only one or two sources of supply, through limited periods and under fluctuating climatic conditions."

"But, doctor, although you live in a valley in these remote mountains you are surely subject to changes."

"Yes, we are subject to changes, but we have the means to counteract them to a certain extent, as I will show you as we make the rounds of the valley."

This conversation was interrupted by the appearance of Sam, with a couple of donkeys saddled for the trip.

"Why, doctor, I had about as lief walk, as to ride one of these little fellows. I could almost carry this one on my back. By the way, is this all of the horse kind you have in the valley?"

"Oh, no! we have a young team, but it takes some time to grow a team here; the passage through which we enter the valley will barely let in those donkeys; and if we want horses we must bring them in as colts and let them grow. Just the same with our few Jerseys. They came in as calves; and if they go out it is by the quarter."

"And the rattlesnake chamber?" queried Fred.

"We have an easy way to manage that," replied the doctor, "and will show you some time. Now, the first stage in our journey will be to follow up these terraces. Hey, Sam!" shouted the doctor, "take down a little lunch about noon to the apiary."

"Ki, yi, doctor! I'll be dar under de yoak, dis side de yapery. Don't ketch me gettin' my woolly head near dem bees, suah."

Up the first terrace Fred stopped his donkey, and said, "What a profusion of little flowers are spangled over this mosslike vine that is clinging to these rocks! and how busy the bees are upon them!"

"Yes, that is one of our valuable honey-plants. Out in the great world you find that only in flower-pots, or to make mosslike banks in public parks. It is mesembryanthemum, and produces an abundance of fine-flavored white honey. I am getting it well started here; you can see the possibilities for the plant in this valley. Give it a good rooting-place, and it will hang over these rocky surfaces; and the beauty of it is, that it covers the portion of the valley that stands up edgewise. This," said the doctor, as they mounted another terrace, "is my shrubbery terrace, such as veronica, heliotrope, etc. These shrubs bloom almost continually in this valley; and, see how industriously the bees work upon them. Then in the lower part of the valley I have the sugar-gums in their variety. Yonder is a terrace devoted to the sages, while on the level portions I have alfalfa and other plants. If we sow merely low-growing plants we can not go beyond our ground acreage; but he who plants a tree puts the acreage in the air; and with the growth of the tree the acreage is permanently increased every year."

"I have often thought of that," said Fred, "while watching year by year the growth of our basswood trees in the East; what an immense acreage of bloom was carried high in the air! But the average bee-man is looking to immediate returns, and thinks it a waste of time to plant for the future; but the fact remains that the noble tree makes the permanent pasturage."

"Yes, Fred, and I am thoroughly of the belief that, if people were dependent upon the bee-hive for their sweets, the production of honey would have been enlarged; the growing and development of honey-producing flora would have been pursued upon scientific principles until production would keep pace with the demand. But cane sugar relegated honey and the prospective development to the background."

"Well, doctor, that is something I had scarcely thought of; still, such development of honey flora may be possible. You said a moment ago that you now study honey production from square feet instead of square miles. Have your experiments in that line led you to determine the number of square feet that would sustain profitably one colony of bees?"

"Approximately I have proved near enough to satisfy myself; and, to speak in round numbers, one colony could find support and give a good surplus of, say, 300 lbs. on 1000 square feet of territory, or ten colonies to the acre; or 5000, say, to the square mile."

"Let's see," said Fred. "A thousand square feet would be about four square rods. Whew! that statement would sound Quixotic to every bee-keeper in Christendom. This valley must be more wonderful than any thing of which bee-men have ever dreamed. Just imagine 5000 colonies of bees in this little valley!"

"I know," said the doctor, "that this valley can be made to produce more than any other place, and it will take several years to get this up to its best; but it must be evident to you that any favorable location under an intelligent planting of trees, shrubs, vines, and plants, could, in a series of years, be brought up to a high state of production."

"Doctor, I must acknowledge that to be a fact. Why! bee-keepers, as a rule, have scarcely ever tried to increase their pasturage beyond what nature gives them; and the honey-flora of the world has not been one hundredth part exploited."

"Furthermore," said the doctor, "instead of hunting new races of bees I would hunt honey-producing flora and adapt it to our country. There is a world of study and experiment awaiting somebody in this field."

They had now reached the upper terrace, and beyond it there was a natural formation that attracted Fred's attention, and he halted his burro, and exclaimed, "Why, doctor, what a terrible-looking place that is! it looks like an acre of glass butcher knives and cleavers, all points and edges up. Why! a man couldn't walk in there five feet without cutting his feet all to pieces; and if he should fall down he'd be a dead man, sure. Ugh!" said Fred, with a shudder.

"Certainly, Fred, that is a bad piece of nature; and now while I think of it I'll show you some more like it;" and, alighting from their burros, they climbed a niche in the side of the cliff, and at the top they stood upon a little cleared place.

"Now what do you see?" asked the doctor, turning to Fred.

"This is truly wonderful," exclaimed Fred, as his eyes followed the circle of the valley and beyond. "The surface of this whole mountain outside of the valley is butcher-knives and cleavers; and now at least one mystery about this valley is solved; that is why no one ever attempts to cross the mountain."

"That is precisely so, Fred; and, furthermore, no one has a suspicion that a beautiful valley lies beyond such a terrible surface."

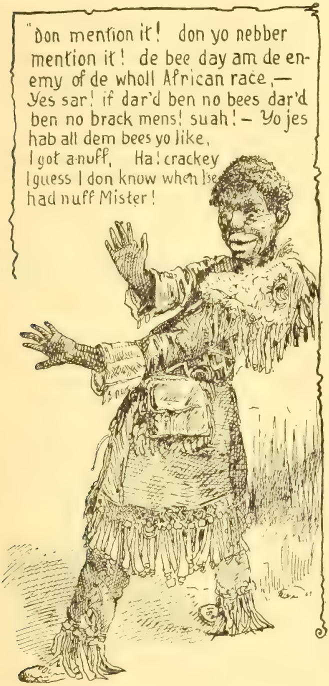
"Then from the appearance of things I should think this whole region is of volcanic origin."

"It certainly is, and I believe that this valley was a volcanic crater years ago; there are even now occasional rumblings, and there are boiling hot sulphur springs in the center of it; but it is now lunch time, and we will hasten to the oak-trees. Sam has not arrived," said the doctor, as they approached the trees; "but he will be here in a few minutes. Let the donkeys graze. Stretch yourself upon this mossy bank, and rest. We would take our lunch at the apiary; but Sam is an arrant coward when near the bees. Hello, Sam! I guess you heard my compliments to you."

"Dat's so, sah, an' dat's so about my gettin' my woolly head neah de bees. Somehow dey don't like de kinks in my har."

"Why, Sam," said Fred, "you must have a holy terror of the busy bee. I believe I could teach you to handle them."

"Don't mention it, Mister Fred. Don't you nebber mention it. De bee am de enemy ob de whole African race. If dar'd been no bee dar'd a been no brack men, suah."


"Don mention it! don yo nebber mention it! de bee day am de enemy of de wholl African race,— Yes sar! if dar'd ben no bees dar'd ben no brack mens! suah! – Yo jes hab all dem bees yo like, I got a-nuff, Ha! crackey I guess I don know when I'se had nuff Mister!

"Why, Sam, how in time do you make that out?" said Fred, with no little curiosity.

"It mus' be you nebber heard our family stradition."

"No," replied Fred. "I never did. Your tradition certainly charges the little bee with a mighty transaction."

"You see, Mister Fred, our African family stradition hab it dat dar was Mister Noah, Mistuss Noah, Ham, Shem, and Japeth. Dey all stood aroun de doah ob de yark, a beholdin' de animals goin' in, an' dey was all white sons ob Mister Noah—Ham, Shem, an' Japeth. It must a ben a spirin' scene to see de elephant, de lions, de giraffs, de 'possums, an' de lesser animals, all two by two, a goin' in like one paneramy, an' dey didn't haft to buy any tickets to see de show. Just as all de small creeters was a goin' in, dar jus came a hummin' down a hul swarm o' bees, an' dey jus' lit on Mistuss Noah's close-line post. Mistuss Noah said she didn't believe dey wanted so many, an' was goin' to save jus' two bees and scald de rest. But Mister Noah told her to desist, an' she desisted; den he told Ham to put all de bees in a big gourd, an' put dem in de yattick ob de yark. Ham had seen so many fierce beasts a goin' into de yark dat he was full ob self-confidence when he 'proached de little bee, an' he 'fused to put on his ma's brussels-net veil. Worse still, he brushed dem off de post wid an ole stub brush-broom, consequently de bees took a han' in de business, an' stung Ham all over his face an' his head an' his arms, an' he was a drefful sight. When de boys, Shem an' Japeth, got him into de tent he went right into convulsions. De hul family was 'cited 'cept Mister Noah. He shook Mistuss Noah. Says he, 'See he'ah, woman; you jus' stop dat snivilin' an' git a bottle o' wine—some o' dat ol' Canaan wine—quick, too, an' let Ham drink a hul bottle of it. Dat good ol' wine'll contract de sting pizen ebery time.' De Noah family had jus' broke up housekeepin' agin a takin' de navigation ob de yark, an' things was sort o' mixed up in de tent. Mistuss Noah was greatly flusterbated, but she found a bottle, an' Ham's convulsions collapsed long enough fo' him to drink de contents. I 'spect he hear'd 'em say it was good ol' Canaan wine. It had a good effec', howsumebber, for putty soon he sot up, an', says he, 'Ma, what in de dickens was in dat ar' bottle? Now it am down, it don't tas' good. It don't tas' like dat good Canaan wine; it tas' orful bitter;' an' Ham hawked an' spit.

"Mistuss Noah took de bottle an' smelt it, an' says she, 'I dunno;' an' she handed it to Shem, an' he smelt it, an' says he, 'I dunno;' an' Shem handed it to Japeth, an' he smelt, an' he said, 'I dunno;' an' Ham says, 'Pa, do smell ob dat ar bottle.' Noah left off readin' de daily paper, and took a long smell 'Lan' sakes alive!' says he; 'woman, you gub Ham dat ar' bottle o' brack ink, specially pared from goats' galls, for scribin' de flood.' But in spite ob dat, Ham began to 'prove, an' to turn brack all over. Says Mistuss Noah, one mornin', 'Dat ink seems to be a strikin' in.' 'Nay,' says Mister Noah, 'it am a strikin' out;' an' poor Ham kep' a growin' better'n better, an' bracker'n bracker; an' bein' dat de ink struck in an' struck out at de same time, an' den struck wid de bee-pizen, he nebber got over it—no, nebber, an' unnumbered generations ob his children are brack to dis day, an' dey all hate de bee."

"Well, Sam," said Fred, "that is a most remarkable tradition; but what became of the bees?"

"De stradition don't say; but I 'spec' Mister

Noah see to it dat 'nough bees got into de yark for seed."

TRADE NOTES
BY EARNEST R. ROOT.

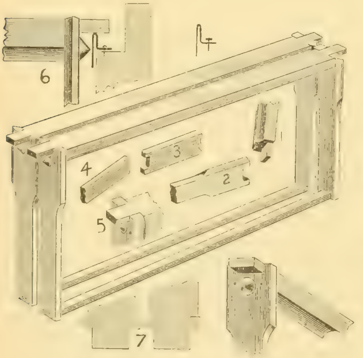
IMPROVEMENTS ON BEE-HIVES AND APPLIANCES TURNED OUT AT THE HOME OF THE HONEY-BEES FOR 1897.

Our policy has all along been to keep fully up with the times, and generally a little *ahead* of them. We point with pride to some of the innovations that we have introduced in the years gone by. For instance, dovetailing the hive-corners; self-spacing frames; Cowan extractors; new process of comb-foundation making, besides a long list of minor features, all of which have come to stay, and on not one of which have we had to take a "back track." Before introducing them we have taken a deal of pains to investigate and test thoroughly, and the result is that I believe our bee-keeping friends have come to look upon us as rather the leaders in apicultural progress.

During the last two or three years we have made no very great changes; but during this year, 1897, we shall announce in our catalog some improvements in hives and appliances that we feel very sure will be accepted at once. Our new 1897 list will be out, probably, within ten days. It will contain cuts and descriptions of the new features. Among the first is the

NEW 1897 HOFFMAN FRAME.

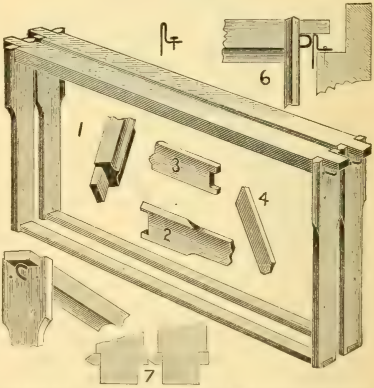
When we first introduced this frame, some years ago, it took like hot cakes, and the continued and increasing demand for it ever since shows plainly enough that it is a practical labor-saver. It had, however, just one fault; namely, that the bees would stick the ends of the top-bars to the contiguous parts of the hive-rabbet, so that, in order to remove one frame, it sometimes became necessary at some seasons of the year to break this top-bar propolis connection of several other frames before the frame in question could be removed. We have been studying on this problem for a couple of years. We have recognized the fact that a bee-space *around* the ends of the top-bars would solve the trouble. The next difficulty was, how to prevent end play. We had thought of a number of devices, and finally Mr. John S. Callbreath, of Mongaup, N. Y., sent us a frame with furniture-nails under the top-bar, as shown in the accompanying engraving.



CALLBREATH'S END-SPACER.

I must confess I was at first delighted with the idea. During the summer we tested several hives with these end-spacers on the frames; and to say that I was pleased with them after manipulation was putting it mildly. During the very worst part of the propolis season, and even when it turned cooler, so that the bee-glue would snap, I could handle Hoffman frames with these end-spacers, with my fingers alone. Such a thing as a screwdriver or a pry was unnecessary. The reason will be apparent. The metallic head of the furniture-nail striking against the tin rabbet would offer the bees no chance to propolize; and even if they did attempt to stick it, the points of contact were so small that it practically amounted to nothing. You can set it down as a rule that bees will never attempt to daub up with propolis a point of metal when it comes against a flat surface of metal.

But we met one serious difficulty—the cost. After a good deal of inquiry we were forced to the conclusion that we could not get these furniture-nails cheap enough without tucking on another dollar or two per 1000 to the cost of the frames. Then our thoughts turned to nails, staples, strips of sheet metal, iron buttons, and every thing else in fact. The staples seemed to be the most feasible. But the question was, to devise some simple and cheap way so they would be driven just so far and no further. That problem, Mr. E. B. Weed, of foundation fame, solved for us very nicely, and which I will refer to further on. Well, here is a set of Hoffman frames with staple end-spacers:



THE NEW 1897 HOFFMAN FRAME WITH STAPLE END-SPACERS.

These staples, providing they are driven the right depth, are as good as furniture-nails, and cost only one-fifteenth as much. The expense is so trifling that we have decided to put them on all of our 1897 frames, without additional cost. Of course, it will be understood that top-bars on all such frames will be a bee-space shorter at each end, making them ½ inch shorter than the last year's top-bars. The staples are fully as strong, and present as little surface of contact as the furniture-nails; and by the method which I will now describe they can be driven to an exact depth, without any variation.

The engravings below will make the matter so plain that it will hardly be necessary to give the method. In Fig. 6, A shows the gauge, the thickness of which is just equal to the height of the staple in the end-bar after it is driven in. The gauge A is pushed up against the under side of the projection of the top-bar, as at Fig. 1, and the staple dropped into the slot. It is then driven down as in Fig. 2, as far as it will go. The gauge is pulled away, leaving the staple at exactly the right depth, as at Fig. 3. In this connection it might be well to state as shown in the figure, that the projection is exactly ½ inch, leaving it exactly ¼ inch from the end of the staple to the end of the top bar. Fig. 5 shows a cross-section of the end of the hive and the frame. It will be observed that the bees can go clear around the end of the top-bar.

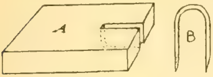
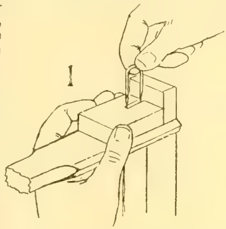
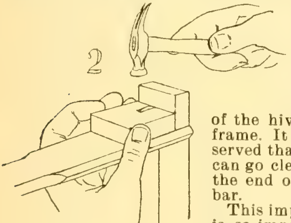
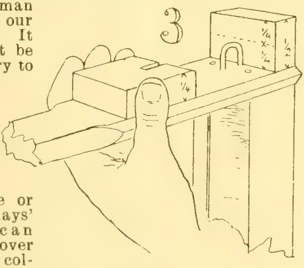


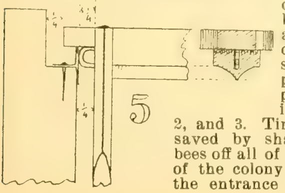
FIG. 6.





This improvement is so important and far-reaching in its benefits, that, just as soon as spring opens up, we shall change over to the end-spacing style of Hoffman in all our yards. It will not be necessary to discard our old frames filled with comb. One man, in three or four days' time, can change over all our colonies. He will carry along with him a light *sharp* back-saw, and will cut off from each end of the top-bar ¼ inch, and then drive in the staple as per the plan shown in Figs. 1, 2, and 3. Time can be saved by shaking the bees off all of the combs of the colony in front of the entrance and then change the frames, after which proceed to the next colony. All surplus combs not in the hives can be changed over now in the shop.





The beauty of this improvement is that every one can adopt it for his own yard, where he has old-style frames; and the benefit is so great that it does not seem to me that any one can afford not to use it. We have already changed over a few of our hives sufficient to know that the work of changing over end-spacers is but slight comparatively. We will furnish the gauges A and the staples B at a nominal sum. By the way, the staple B is not shown its full size of wire. It is, in fact, No. 16 wire, and ¾ inches long, made to order, with prongs extra wide apart.

Editorial

My, oh my! how are these cold snaps affecting the bees? Ours are all right; but how are yours?

We have so much matter that I find it necessary to cut down the usual editorial space in this issue; and even now I have enough contributed matter on hand to make up almost two whole journals yet. Our contributors will therefore understand why some of their articles have not yet appeared.

OUR SYMPOSIUM; POSSIBILITIES ALONG THE LINE OF THE NEW COMB.

In this issue we have two short symposiums—one on the subject of tall sections, and the other on drawn or partly drawn combs, or, perhaps, it might more properly be styled deep-cell foundation with side-walls and bases as light as natural. Just exactly what we may expect from this new product it is impossible at this time to foreshadow. If it shall be feasible some time in the future to furnish it the same as we do foundation, and at a price within the reach of bee-keepers, great things are possible. Here are a few of them: 1. Bees going into comb honey supers sooner; 2. Securing section honey during off years, when the bees would not draw out foundation; 3. Partial prevention of swarming; 4. Being able to produce comb as cheaply as extracted; 5. Lessening the adulteration evil in proportion to the reduced amount of extracted honey on the market. If as much comb can be produced as extracted, and at a better price, it will be produced more largely; and as retailers and commission men can not adulterate honey in the comb as they can extracted, the bulk of the honey will be the direct product of the hive.

Now, understand that I state that these are only *possibilities*. While it is possible to produce the new deep-cell foundation in a small way, it may be utterly impossible to make it in sufficient quantity to put it on the market as an article of sale, so we will not count our chickens before they are hatched. It may be well, however, for us to consider now the mere possibilities, so that those who secure samples can experiment along the lines indicated in 1, 2, 3, 4, and 5.

ANOTHER COMMISSION MAN.

Mr. O. L. Hersheiser, Vice-president of the U. S. B. K. U., which is to meet next in Buffalo, it will be remembered, was a bee-keeper who graduated at the Michigan Agricultural College at Lansing, under Prof. Cook. Indeed, I believe he had charge of the college apiary while he was there. He was superintendent of the New York exhibits at the World's Fair; and at present he is an attorney in Buffalo, N. Y., 410 Real-estate Exchange. He has been fighting a certain commission man by the name of Wm. H. Unger, operating under the firm name of Unger & Co., Michigan St., Buffalo. A long tale of this man's misdeeds are set forth in the *Evening News* of Saturday, Jan. 9th. A single paragraph will suffice.

> Here is the story of a man who was once arrested for petit larceny and fined $50 by Judge White, of the Supreme Court, twice arrested for assault (once fined $20 by Judge King), now at large on his own recognizance, having been arrested by United States Deputy Marshal Kane, charged with using the government mails for the purpose of defrauding farmers, and the climax of whose career is the offer of a bribe of $2.00 and a box of figs to a young reporter to suppress the news of his arrest, and an attempt subsequently to assault the reporter because the fact was printed. Not satisfied with this, he made a statement to another afternoon paper that the aforesaid reporter had tried to blackmail him.

There are other commission houses in the city of New York that seem to be working on the same line; and it seems to me that bee-keepers by this time ought to know better than to send their honey to unknown firms. Don't trust your honey with them, even if they do appear to give good impressions, and talk about their ratings in Dun and Bradstreet. If there are any other chaps like this man Unger in Buffalo, I am sure our friends will know to whom to look in the way of counsel.

FOUL BROOD IN FOUNDATION; APICULTURAL EXPERIMENTS.

Some years ago the suggestion was made that there was a possibility of transmitting foul brood through foundation; but at the time, we all felt (without making any definite tests) that there was no danger from this source; but Mr. R. F. Holtermann, in the employ of the Ontario government, has been conducting a series of experiments along the line of bee-keeping, and among them was this regarding the possibility of transmitting foul brood through foundation. He selected a very bad case of foul brood, combs being fairly rotten with the disease. These were melted up by very low heat — just sufficient to cause the wax to come to a liquid condition, sufficient for dipping. Sheets were secured from this wax, and they were rolled out into foundation. This was put into a healthy hive, and the results watched narrowly. The whole season went by and no infection followed. When it is remembered that, in the process of ordinary foundation-making, the wax is brought to a much higher degree of heat than the mere melting-point—about 142—it will be seen that there can be no possible danger of contracting the disease through foundation.

FORMIC ACID IN HONEY.

Another experiment was along the line of determining the amount of formic acid in different qualities of honey, obtained under different conditions. He secured a number of samples from different sources—some when the honey was stored rapidly, and some when brought in little by little. These were placed in the hands of a chemist, and tested for formic acid. It was found that there was more of the acid in some honeys than in others, and that there was twice as much in buckwheat as in ordinary white clover. Mr. Holtermann told me that he had always observed that bee-stings were more painful during buckwheat season than at any other time, and wondered if the larger amount of formic acid in buckwheat honey itself, upon which the bees feed, would explain it.

I had always supposed that there was formic acid in honey, but I was not aware before that there was any definite proof. The presence of this acid is probably due to the process of digestion in the honey-stomach of the bee; and—well, I'll not say more for I feel as if I were floundering in the dark. Perhaps Mr. Holtermann or the chemist or Prof. Cook will enlighten us further.

I received the above facts from Mr. Holtermann by word of mouth while he was here a few days ago. By the way, Mr. H. expects to secure the appointment to the position of apicultural experimenter for the general government of the Dominion, at Ottawa. He would be a good man for the place, and I know his friends will be glad to hear of his appointment, which now looks reasonably certain.

Menthol honey cough-drops is a preparation on the market that tastes strongly of honey and menthol. An acquaintance, troubled with a hacking cough, tried them and reports that they seemed to give relief. Perhaps there are others who would like to try them, as I understand they are on sale at confectioners' shops. We as bee-keepers need to encourage the sale of any legitimate article of merit having honey as an ingredient. This is not a "paid puff;" indeed, the J. P. Annen Candy Co., of Green Bay, Wis., who put them up, know nothing of this notice.

If your bees are short of stores, and you have no combs of sealed honey in reserve, lay on the frames under the quilt a chunk of Good candy, made by kneading powdered sugar and honey to a stiff dough.

OUR HOMES.

Be thou faithful unto death, and I will give thee a crown of life.—REV. 2:10.

I had just finished a nice supper, Christmas evening, and the neat and obliging waiter of the pretty restaurant had marked the price "35 cts." on a slip of white paper. As I walked toward the desk I put a half-dollar, as I supposed, with the paper, and laid both on the counter, without saying any thing. The clerk touched his machine. It showed up 35 cts. all right; but instead of handing me 15 cts. only, he gave me *another* half-dollar with the 15. My first impression was that I must have given him a *whole* dollar instead of a half; but while I was meditating on it the coins were in my hand, and, being in a hurry, I passed out. Now, I am going to tell the truth about it, as near as I can. While I was going out, self (or *Satan*) suggested, "It is his own job, any way; this trip is costing you quite a good deal; every half-dollar counts; you have got to be a little saving."

By the way, friends, Satan *does* get on a saving mood sometimes. You will remember his suggestion to Judas about being "saving." The trouble is, he always advises saving money that belongs to somebody besides his victim. I was outdoors and had my hands on my wheel; but another and far different voice was saying, "You had better lose a hundred times the amount than wrong your neighbor, even if he did make the blunder. How about your favorite text, of 'being faithful unto death,' and your teaching all along in that line?"

Then it occurred to me that he could probably tell, even yet, what it was I gave him. I went back inside.

"Sir, can you find the coin I gave you just now when I paid for my supper?"

He opened the drawer, snapped his fingers, and colored up.

"I declare, I *thought* you gave me a dollar; but here is only 50 cts. in the box where the dollar should be."

He thanked me very courteously, saying he feared it was not every one who would take so much pains to correct a blunder of his own making; but I presume it didn't even occur to him that *I* didn't correct it as soon as it was made. How does it come that I am tried so much in just this way? Is the great God above trying me (and *you too*, my friend) every now and then, to see if we are trying to be "faithful to the end" in loving our neighbor as ourself? If so, then let us see to it, dear fellow-travelers, that we are not entrapped by the great adversary.

An hour later my ear caught the sound of martial music. It was the Salvation Army. As it was Christmas evening there were quite a few on the streets, and quite a crowd collected around them. A good many did not seem to understand them. Most of them were smoking, some had been drinking, and coarse talk and many oaths were mingled with the beautiful hymns that were being sung. They (the army-workers) finally all knelt in the dusty street; and while a woman was praying for the rough crowd around, one fellow, more curious than the rest, pushed through the circle and came close up to the one who was praying. He looked first at the crowd outside, whom he *could* understand, then at the little flock on their knees whom he could *not* understand. Let me digress a little right here.

During all my life—that is, all my Christian life—I have longed for something or somebody who could bridge the gulf between the hard unbelieving world and true, honest, earnest *Christians*, and make the scoffers comprehend what Christianity really is. It wants grace—oh such an *amount* of grace! to enable believers and unbelievers to even converse together in a neighborly way. Let us consider the scene I have pictured. This stranger stands leaning over the woman on her knees, looking *down* upon her, probably in pity. He has taken his cigar out of his mouth; and while he puffs a cloud of smoke all over those on their knees, even into their very faces, he looks round inquiringly. I think I can understand the look. To me it seemed as if he were saying:

"Why! what are these blank idiots up to, any way? What is their game?"

The prayer did not attract so many; but when the captain stepped on a chair, and sang one of the sweetest hymns I ever heard, accompanying it with a guitar, they all came thronging back. All at once I was startled by most horrid oaths right at my elbow, and in a *woman's* voice. Omitting the oaths, she said:

"They lie, every one of them. They ain't a bit better than I am."

I came pretty near smiling at this, for it seemed a little as if she was, to use a slang phrase, "giving herself away." She resumed, "They won't hold out, any way; see if every one in the lot don't go back, before *next* Christmas."[*]

Oh how I did pray inwardly for God's grace to be poured out on that little band, and that they might have the Holy Spirit as on the day of Pentecost, so that all that hard crowd might hear the gospel explained in a tongue they could understand and comprehend. My prayer seemed answered. The woman's fling was taken up. First one and then another replied in substance:

"Watch us and *see* if we don't hold out." "We *want* to be watched." "Some of us have been in the blessed work for many years. We appeal to the crowd. Have any of you ever known a crooked thing in our past record?" No one answered, and then a new recruit took the stand. His testimony was something as follows:

"Friends, this is the first Christmas that I have passed, as a sober man, for 25 years. Just a year ago to-night, I, with a few of the same sort, were engaged in 'painting the town red.' Last June my friends had all given me up; I had given myself up; but these friends here picked me out of the gutter, told me of Christ Jesus, and here I am, by the grace of God."

Even after this, several voices from the crowd declared he wouldn't "hold out." "Boys," said he, "many of you know me. Is it not true that I have been a drinking and profane man for 25 years?"

Many answered, "You are telling the truth now, Jim." "We'll back up that statement."

"Well, has any one of you known of my drinking a drop since these good people lifted me up and had compassion on me?"

Not a voice answered.

After this converted man had finished speaking, one of the officers of the army arose and spoke something like this:

"Friends, this man tells you that, one year ago to-night, he helped to 'paint the town red.' He did not add, but I will do it for him, that to-night he is helping to wash the town white—not whitewashing, mind you. The Salvation Army does not deal in whitewash—we have no use for it; but he, with the rest of us, are trying to wash the town white in the blood of the Lamb—Christ Jesus."

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[*] This woman's talk made me think of the words, "And, behold, they cried out, saying, What have we to do with thee, Jesus, thou Son of God? art thou come hither to torment us before the time?

Then I thought of the words, "Purge me with hyssop, and I shall be clean; wash me and I shall be whiter than snow."

As that swearing and drinking crowd of men and women gazed at that little band of Christian workers, it seemed to me that my prayer was answered. The dullest and most obtuse one in the lot could and must, in fact, understand what it meant to be washed clean from all their sins and iniquities. It seemed to me that I never comprehended before so vividly the difference between sin and godliness as we had it there pictured before us. Taking that crowd as it stood, and considering the matter of cleansing them from all their sins and depravity, I should have said, humanly speaking, that it could not be done—that it would be a physical impossibility; and yet the brother's words, which he had just spoken, were still ringing in their ears. The marks of years of dissipation were like furrows, and left their tracks on his poor face; and yet he was actually pleading to have them give up their sinful lives and sinful ways, and trust Christ Jesus. I never before in my life saw such a direct hand-to hand conflict betwen Satan and Christ Jesus; and it seemed as though at least once in the world the opposing forces had met. There was not any abstruse doctrine discussed—at least nothing difficult to understand; but it was the one plain simple question, "Will you throw up your old sinful life, and march with us under the banner of Christ Jesus?" Then I thought of the words of that old hymn—

Now wash me, and I shall be whiter than snow.

Other similar testimonies followed, and they were all in a line to support the promise in the text I have chosen. Some of the hymns would have done credit to any concert I ever attended; and after they adjourned to the hall the captain gave us a short sermon that, in my opinion, would do credit to any pulpit. Doubtless unusual preparation was made, it being Christmas night.

I stayed so late at their meeting in the hall it was a little after my usual time when I closed my eyes in oblivion, thinking my conflicts with the prince of darkness were over, at least for that day. Not so, however. I was so tired and sleepy I retired without first opening the window for fresh air, as I usually do. Toward midnight I awoke, feeling the air in my room was not exactly what we get when—camping out under the stars, for instance. Before the closed window was a heavy paper curtain. As this failed to run up out of the way as it should do I held it back with a chair; then as I could not pull the window up, nor find the fastening, I turned on the electric light. Even then I did not succeed in getting the window loose; and to get a better chance I stepped up on the sill. Let me explain that the building was like many in hot climates with adobe walls—two feet thick or more, the windows of the lower story being quite near the ground. Well, as soon as I was up on the sill I found the fastening; but before I touched it I saw that I had attracted the attention of some one at a little distance across the common outside. This some one proved to be a finely dressed woman, and she was tripping swiftly toward my window with its blazing electric light. I stepped down very quickly, removing the chair so the paper curtain covered the window very completely. Tap, tap, tap, came on the glass. I stood very still, and hardly dared breathe. If I didn't answer or move she would surely go away, I thought; but she kept tapping. Finally she essayed to raise the sash; but as *I* could not start it from the inside, I felt quite safe. Imagine my consternation when I heard it go the very top with a rush as soon as *she* touched it. I moved a step or two behind the washstand, while I asked quietly what was wanted. She pushed the curtain aside enough to show her face, and said, as she smiled in an apparently innocent way:

"I only wanted to wish you a 'merry Christmas.'"

"You have done so; now go away; good-night."

"Don't be cross," she added in a lower tone, with something else. Satan in bodily form stood before me, and gave me a brief glimpse of what *he* could do in getting *man*kind to fall at his feet to worship him. I stopped her by saying, "There, that will do;" and at the same time I backed toward the door on the opposite side of the room. I made up my mind very quickly that she and I would never be seen in that room together, not even by the holy eye of the great God above. When I started to put out my hand toward the door, then she went away. Was this another test to see if I would be "faithful unto death?" In the early evening I had witnessed what woman can do to *raise* fallen men; the last few minutes had given me a view of what Satan can do, with woman's help, to drag men *down*. Under other surroundings and circumstances I should have called this one of the brightest and handsomest women I ever saw; there was a fascination about her looks that, rightly used, might have been a great power for good. I could only groan in spirit as I looked at her. "O God! is it *indeed* true that some of the fairest and brightest of womankind have *sold themselves* to the work of ruining the world?"

It sometimes seems as if no power on earth were sufficient to warn men of the danger of trifling with intoxicants, and it is the same with this other evil. Had I lost my hold in climbing Superstitious Mountain, and been dashed on the rocks, there would have been some mourning, especially among my intimate friends; but had I fallen in this other way, my memory would have hardly been worth a funeral at all. A man had better die an honest, innocent death, a thousand times better, than march boldly on to disgrace and ruin. See what God's holy word says about it:

"Can a man take fire into his bosom and not be burned?"

"But whoso committeth adultery with a woman lacketh understanding: he that doeth it destroyeth his own soul."

"For she hath cast down many wounded; yea, many strong men have been slain by her.

"Her house is the way to hell, going down to the chambers of death."

Mrs. Root made me a present of a book. She sent it by mail, so it reached me on Christmas eve. I like it so much I should be glad to have it read by every one who reads GLEANINGS.* The leading character of the book is a minister who spent his life in hardship in "being faithful unto death," and near his end he uttered the following prayer while alone by himself:

"Lord, I have groped after thee, and to know thy will, and to do it if I could. I never expected to be happy. Dost thou mean this draught of human joy for me?"

It almost startled me to read it, because several times, recently, I have used much the same sort of prayer myself. You see our friend had "been faithful," without any thought of reward, and when he breathed that prayer he was just getting a glimpse of the "crown of life" that comes in in the latter part of our text.

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* The book is, "A Singular Life," by Elizabeth Stuart Phelps.

"Be thou faithful unto death, and I will give thee a crown of life."

NOTES OF TRAVEL

BY A. I. ROOT.

Mr. L. B. Bell, of Camp Verde, Ariz., has charge of two apiaries belonging to Mr. F. E. Jordan. Mr. Jordan is now living in Jerome. More of him anon. Mr. Bell does not get so large a yield of honey by considerable as they do in alfalfa districts. His yield during the season just past was only about 70 lbs. per colony. Their honey is gathered from mesquite and other plants of the desert. The quality of the honey, however, is exceedingly fine; and in Jerome, 30 miles away, he gets for his whole crop 7 cts. a pound. This is nearly double, you will notice, what they get in the Salt River Valley; but it has to be transported all this distance by wagon.

Mrs. Bell was, before her marriage, a schoolteacher in the far West. And, by the way, this rough far West is more indebted to the schoolma'ams who have gone away out there to teach than perhaps it will ever realize. And may I suggest right here that I fear that some of the men who have succeeded in getting these schoolma'ams for wives do not always realize how much they have to thank God for? Some of them do, however, evidently, and Mr. Bell is one of these. If I am correct, one reason why he chose that desert land for a home was because of what I have already mentioned—that is, the mother died of consumption, when he was almost too small to remember her very well. He is now rugged and strong, and I should be almost willing to spend the rest of my life in Arizona if I thought I should be able to acquire the endurance to wind or weather, that he seems to possess.

We arrived at his home Jan. 1. In the afternoon we started out to explore some of the ancient cliff-dwellings only a few miles from his home. These dwellings are scattered more or less all through Arizona. The first essential is a cliff. Now, whether the natives in olden times dug back into the chalky rock so as to form caverns, or whether these caverns were made by some flood in former ages, I am unable to say. My impression is, however, that the caves were, at least mostly, washed out by water. The dwellings are usually found where there is a soft stratum of chalky rock between two harder strata or layers. These are never found very near the ground—generally from 30 to 40 feet, and often 100, and in extreme cases 400 or 500 feet from the level. Usually the cliffs are inaccessible unless one uses a ladder, or walks along on the edges of the shelving rocks. Almost every time when I looked at these homes made by that strange race of people a thousand years ago, I would say, "Well, I am pretty sure I should not be able to get up there without ladders or some sort of assistance along that line." But Mr. Bell, our pilot, replied that we could reach every one of them if we hunted up the path used by the cliff-dwellers of old.

A good many times we found holes in the rocks, probably made for the hands, so as to enable one to climb along the dizzy heights. The rooms are usually a sort of cave back in the rock. The opening to these caves is closed up with pieces of rock and mortar, very much as a stone mason lays a wall nowadays. They did very little stone-cutting, however. The chalky rock pounded up seemed to furnish the mortar. Instead of cutting the rocks with stone-cutters' tools they evidently selected such as were fit for their purpose, and showed much skill in laying them so as to have a smooth wall, outside and in. This wall not only closed up the entrance of the cave, but it divides off the rooms inside, or divides one man's house from that of his neighbor. The doors of these dwellings are all low; in fact, it is tiresome, on account of the constant stooping, to explore them. Some of the largest are high enough inside so one can stand erect; but in many of them you will be obliged to sit or stoop down. They are blackened more or less overhead by smoke, and I might almost call it the smoke of ages, for the room still smells of smoke, even though hundreds of years have past since any fire was built. In some of the largest and finest, places for beds or couches were worked out of the solid rock. Much of this work is obscure, however, on account of the great quantities of bat manure that cover the floors. In some of the buildings it is at least a foot deep. Everybody seems to acknowledge the value of this bat guano, or manure; but the expense of hauling it to a railroad station, and then paying the cost of transportation, stands in the way of its utilization. In one of the extensive cliff-dwellings, in their search for relics, it seems to me a full carload of the guano was shoveled out in a heap. Under the influence of the rain it seems to have softened up into a material that looks very much like old well-rotted manure. Our readers may remember that we have already used bat manure, shipped in from some of the Southern States, in our greenhouse experiments.

There have been many conjectures made, to the effect that these cave-dwellers were small in stature. None of the mummies are larger than would be those of children ten or twelve years old. The ceiling to the dwellings would accommodate people of about that height, and their doorways likewise. But it should be remembered that many races, even at the present time, have low doors and low ceilings. They stoop when they go inside, and usually sit on the ground instead of on chairs, as civilized people do. But, to go back to the cliff-dwellings.

One of the most interesting features connected with every one of these old-time homes is one or more little closets opening into the main apartment. These closets are egg-shaped, and are made far enough into the rock so the opening can be closed with stones and mortar; then after it is plastered over with thin mortar, something like whitewash, one would never dream of the existence of this cupboard or closet were it not that the wall sounds hollow when you pound on it where these are found. It has been suggested that these were made for storing their grain. When walled up it was secure from rats, mice, and insects; and in the dry rock it would probably keep several years. On the top of the cliff we found the remains of dwellings made entirely of stone walls. Where these were exposed to the weather, the roof had long ago fallen in and rotted away; but in one place we found a piece of timber over a doorway, and it was still sound. Mr. Bell recognized it as a very durable wood found on the desert. As quite a number of mummies of these ancient people have recently been found, we saw evidences almost everywhere of where the pick had been used in searching for relics.

In almost every one of these dwellings we find little shriveled-up corncobs. It seemed to me as if they had a kind of corn smaller than any thing we have now in cultivation, for these cobs were not even as large as that from the smallest ears of popcorn. I could not learn that anybody had ever succeeded in getting any of the grains of corn of this kind. If one could find one of these granaries full of grain, that had never been broken open, it would be indeed a valuable "find." These people raised crops, for the old irrigating-canals are found all through the valleys. In fact, quite a few times these same old ditches have been utilized for modern irrigation, and the engineering ability displayed in leading the water on to the land seems to be about equal to any thing of modern times.

The last of my notes in our last issue were penciled while I was ensconced in the hollow of a rock. As I had something of a cold I found a place out of the wind, and in the sun, where I could warm up and write in comfort. The rest of our party were off on the snowy mountain-tops hunting. Right across the river from where I was writing was a considerable town of cliff-dwellings. After the men returned, Mr. Bell said we must certainly visit these, because there were some particular features about them different from those we had visited the day before, that I have just described. The question was, how to get over there. The bank was too steep to get the wagon down; but our horses, being used to mountain climbing, got down without any trouble. We were to cross the river on horseback. I demurred some, fearing the bottom might prove treacherous. Mr. Bell, however, took the gentler of the two horses and rode it through the river back and forth several times. When I saw him raise his feet so as to keep them out of the water I felt considerably nervous at the undertaking. However, we got across all right, and found so much that was wonderful and strange that it was toward sundown before we started to go back. I suggested he should take the same path back through the water so there could be no danger of an accident. We had just got to the point when we were both advised to double up our knees so as to keep our feet out of the water, and were discussing whether we were exactly on the old track. The rushing waters began to make me a little dizzy, and at last I thought it was my imagination that made it seem that the horse was rolling over. In a second more, however, I had to face the stern reality. Mollie got her hind feet into a little spot of quicksand, and with two men on her back she was hardly equal to the task of getting out. I was so used to springing from a wheel and alighting on my feet that I involuntarily sprang from the horse in the same way, and I alighted in the water all right, on my feet; but Mollie, as she went over, struck one of my legs, and there was no help for it—I had to go down in that raging flood of icy-cold water. Mr. Bell, however, spoke quickly and sharply to Mollie; and as he slid off she rallied, and my leg was released almost as quickly as it was pinned. Here was a dilemma. I was pretty well soaked, and we were eight or nine miles from home. Mr. Bell's buoyancy of spirits cropped out even then and there, however. While we were wading out through the rushing water, in a dismally comic tone he said:

"Well, Mr. Root, who would have thought that you and I would have 'fallen out' so *soon*, and on so short an acquaintance as this?"

In spite of the water that was dripping from me all over, the comicality of the scene struck me so that I laughed till my laughing helped at least a little to keep me warm. As I approached the wagon I asked Mr. Carey, the Quaker, to pull a cushion from the wagon-seat and lay it on the sand. He seemed to be a good deal worried, but took in the situation, and down I went on the cushion, on my back. Then I raised both feet so as to let the water run out of my boots. I was in such a hurry that I forgot to pull my pants well above my boot-tops, and down went the icy water into my trousers-legs, wetting my clothing, which was comparatively dry until then. We soon learned wisdom, however, and when the last drop of water had dripped from my boots I sprang on to my wheel and started over the desert sand to get up a circulation. After going over a mile I found a farmhouse. The people were all away from home except some girls. I hastily appropriated the big open fireplace, and asked the girl to help me wring out some of my clothing. We were soon acquainted, and got things fixed in pretty fair shape. At this time the wagon had just come up. Some of the girls said a flock of wild geese were down in the field feeding on alfalfa. Now, Mr. Elvey was the hunter of the crowd; and if you want to see him up and dressed in a second, just tell him there is game in sight. The question was, should they bother with the geese when I was in such a plight, and a dark night coming on? I could not keep that desert road after dark; and, furthermore, that Verde River would have to be crossed again about a mile from home. I told them to never mind me, but go and get the geese, and then make the horses do their very best to catch up with me shortly after I should reach the river. I made the seven miles, and reached the river just as it was getting too dark to keep my wheel off from the thorns and cacti. But I tell you I made that wheel fly. I was warm and comfortable, but getting pretty well tired from so much wet heavy clothing. I reached the river, and decided there was no other way than to ride back until I should meet the team, even though it was getting to be too dark to see. Before going many rods I met the team, coming up on a gallop.

"How many geese did you get?"

"Didn't get any geese, but we made the feathers fly," said the Quaker.

Somebody else replied, "It is true, the feathers *did* fly—when the geese did, as they always do." And then it transpired that they felt so anxious about me they did not wait to get within decent range of a flock of fifteen or twenty wild geese. These fowls are ravenously fond of alfalfa, and will return to a field again and again, even after having been driven away by firing at them.

I reached the friendly home of Mr. Bell in pretty good trim. By chance a roaring fire was ready, and I was soon safe from harm. The next morning I think I was rather better if any thing. The plunge bath of icy water did me no harm. And here is a lesson for us, friends: In cases of this kind, when you get into the water nothing is necessary but to keep up the temperature by means of brisk or violent exercise. If you can not do any better, walk briskly till you can get shelter. A drink of hot water may be all right, if the patient can be afterward protected from the weather. Usually a brisk walk will of itself keep one from taking cold.

HIGH PRESSURE GARDENING

THE SEVERE COLD, LAST WEEK IN JANUARY.

During the past few days the thermometer has been down *16 degrees below zero;* at least, that is what it recorded Monday morning—the coldest weather we have had here for fully 25 years, if I am correct; but I am happy to say that our little greenhouse across the way came through it all, just smiling. Nobody went inside it from Saturday morning until Monday morning. Of course the exhaust steam was shut off Saturday night, but the hot ground kept the hot water circulating all day Sunday; and even Monday morning, before the engine started, the lines of hot-water pipes were plainly visible through the frost overhead on the glass. The house contained lettuce, and it had been making most wonderfully rapid growth. When I left home Dec. 1 I told the boys we wanted the center beds arranged for sub-irrigation, and just 6 weeks later they showed me the finest crop of lettuce, almost, I ever saw in these very beds where they had done the work. Sub-irrigation and hot-water heating by exhaust steam is certainly the thing for lettuce-growing. At present writing we can't exactly say whether our glass-covered beds outside have sustained any injury or not; that is, every thing was pretty well covered with snow during the big freeze, and is yet, Jan. 30, 1897.

THOROUGHBRED AND NEW QUEEN FOR SECOND CROP.

I did well with the 1 lb. of Thoroughbred potatoes. First crop, 55 lbs.; 1 peck, planted in July, second crop, made 1½ barrels. New Queens also did splendidly. New Queens and Thoroughbreds excelled Triumphs in West Tennessee for second crop.

Lytle, Texas. F. J. CRADDOCK.

MAULE'S THOROUGBRED IN NEBRASKA.

Mr. Root:—The pound I got of you last winter for a new subscriber did pretty well. I got *seventy-nine pounds* from one. The largest potato weighed 1 lb. 9 oz. Weighed six of them, and they weighed over 8 lbs. They are not as early here as advertised. We have several kinds earlier. R. CHINN.

Wakefield, Neb.

THOROUGHBREDS IN OREGON.

The one pound of Maule's Thoroughbred potatoes you sent me as a premium yielded me 71 lbs. of fine potatoes. Single specimens weighed from 2½ to 3 lbs. J. Y. KAUFFMAN.

Veronia, Or., Nov. 30.

THE NEW CRAIG FOR SPRING EATING.

The early September frost caught them growing well, and have shortened the yield materially. I have 30 bushels, with the small ones out. They are the finest spring eating potato I ever saw, and bother very little about sprouting.

Clark, N. Y., Dec. 26. W. H. S. GROUT.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

We have made a careful examination of most of the catalogs of reliable seedsmen, and find very few seeds of any kind lower than our prices, and these prices we are going to meet; viz., Yellow Globe Danvers onion seed we will make 5 lbs., by mail, postpaid, $3.00; and Prizetaker onion seed, 5 lbs., by mail, postpaid, $6.00. American Wonder peas, $1.25 per peck; $4.50 per bush., f. o. b. Medina.

QUALITY OF SEEDS.

In regard to the quality of our seed: We are taking more pains that we ever did before to get only the best. Seeds that we grow ourselves we know are all right; and those we buy of growers with whom we are personally acquainted we feel sure they are all right. Where so much is at stake, there are certain kinds of seeds that we would not purchase or take at any price *unless* it was from some person who is not only reliable but has interest enough in the matter to make them as careful as ourselves.

MAULE'S EARLY THOROUGHBRED POTATOES; REDUCTION IN PRICE.

The friends will remember that, some time in the fall, I said if any reliable potato-grower offered potatoes any cheaper than we did we would make the price to correspond. We now notice that three or more reliable firms are offering Maule's Thoroughbred at $5.00 per bbl.; therefore this will be our price until further orders. Those who have purchased at larger prices will please notify us at once, and have the amount over placed to their credit. We make this offer also in regard to any other potatoes that we may offer for sale. We will make our price as low as that of any responsible grower, with this exception: A variety that becomes scarce, and is sold out or nearly sold out, will not, of course, be rebated.

One pound, by mail, postpaid, 40 cts.; 3 lbs., by mail, postpaid, 75 cts.; 50 strong eyes, by mail, post paid, $1.00; ½ peck, 50 cts.; 1 peck, 80 cts.; ½ bush., $1.50; 1 bush., $2.25; barrel of 11 pecks, $5.00.

OUR AGRICULTURAL, HORTICULTURAL, AND GARDENING EXCHANGES.

	Price with GLEANINGS.
Rural New-Yorker ($1.00) weekly	$1 75
Ohio Farmer ($1.00) weekly	1.60
American Agriculturist ($1.00) weekly	1.25
Country Gentleman ($2.50) weekly	3.00
Practical Farmer ($1.00)	1.50
Farm Journal (50c) semi monthly	1.10
Farm and Fireside (50c) semi monthly	1.25
American Gardening ($1.00) weekly	1.75
Market Garden (50c) monthly	1.25
Drainage and Farm Journal ($1.00) monthly	1 75
Strawberry Culturist (50c) monthly	1.25

Philadelphia and New York Branch of The A. I. Root Co.

I have decided, as I live (Wyncote) on the main line between Philadelphia and New York, and do considerable business that takes me to New York repeatedly to ship goods from either place at Root's current prices. This will enable all parties living in New York State or New England to get goods for very low freight. The A. I. Root Co. carry a large stock at my place, and orders filled and prices made the same as if ordered from Medina. Address main office, **THE A. I. ROOT CO.,**

Wm. A. Selser, Mgr. 10 Vine St., Phil., Pa.

Bargains in Second-hand Bicycles.

We have on hand two ladies' Defiance bicycles, made by the Monarch Cycle Co., of Chicago, and listed at $75.00. These are last year's models, and were used by the women of Rootville last season. The two machines are in first class running order; and as they were ridden but little they are practically as good as new. They have Garford spring saddles, reversible handle-bars, 1⅛-inch tubing, Morgan & Wright quick-repair tires. Weight, 25 lbs. each. Catalogs and particulars will be furnished on application. We will re-enamel them, and sell them for $40.00 each, or the two for $77.50. Beeswax or honey at market prices will be accepted in payment. Reason for selling—we are going to have a tandem instead for '97

THE A. I. ROOT CO., Medina O.

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Sections, Extractors, Smokers, and every thing a Bee-keeper wants. **Honest Goods at Close Honest Prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

ROOT'S GOODS. Get discounts on early orders for 1897. A. I. Root Co.'s bee-supplies always on hand. Better prepared than ever to fill orders promptly. 36-p. catalog free.

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FOR SALE.—1000 lbs. nice comb honey in 12-lb. cases. L. WERNER, Edwardsville, Ill.

Everybody Interested in Gardening

Absolutely needs our **New Seed and Plant Book.** It is the Gem Catalogue for 1897, and full of inducements that appeal to every one having a garden. We offer this year **6 Choice Novelties in Vegetables, one packet of each, for 15 cents. 6 Choice Floral Novelties, one packet of each, 15 cents. Both collections, 12 packets, for 25 cents, postpaid. 5 pounds of the leading varieties of Onion Seed delivered to any post-office in the United States for $3.00. Our Up-to-date Collection of 8 Everblooming Roses is a wonder, for only 50 cents, postpaid.** Almost every page contains offers equally desirable. Do not think of ordering Seeds, Plants or Bulbs from any one before you have this book. It will be mailed **free** to all sending their address.

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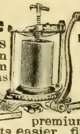

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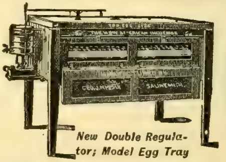

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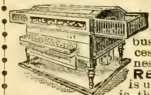

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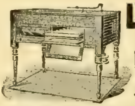

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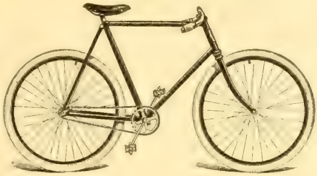

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We want the patronage of intelligent and discriminating buyers. 1897 catalog mailed free for the asking.

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Send 4 cents postage for our booklet, "Shakespeare and the Bicycle." Twelve illustrations in colors by F. Opper, of "Puck."

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CONVENTION NOTICES.

The seventh annual meeting of the Eastern Iowa Bee-keepers' Association will be at Anamosa, Ia., Feb. 10, 11, 1897. Among the good things to be discussed will be the reports of the experimental staff appointed for special work in the apiary. Let us forget the hard times, poor honey crop, low prices. Come and enjoy the feast prepared for you. Programs will be sent to members. F. M. Merritt, Pres., Andrew, Ia.

The Illinois State Bee-keepers' Association will meet at the State House, Springfield Feb. 24, 25 1897. The State Farmers' Institute and also the State Live-stock Breeders' Association meet at the same time and place. The Legislature will then be in session, and we hope to have such a showing, and such an influence upon it as to secure the passage of a bill that will put an end to the adulteration of honey in our State—the greatest evil that exists, to the detriment of bee-keepers. The railroad rates will be announced later. Good meals can be secured at 25 cts. Program later. J. A. Stone, Sec.
Bradfordton, Ill.

SPECIAL NOTICES FROM BUSINESS MANAGER

NEW PRICES ON SECTIONS.

Instead of the prices on sections mentioned six weeks ago, we have adopted the following, taking effect at once:

	No. 1.	No. 2.		No. 1.	No. 2.
Per 100,	$ .50	$ .40	1000 at	$3 00	$2.50
Per 250,	.85	.75	3000 at	2.75	2.25
Per 500,	1.50	1.25	5000 at	2.50	2.00

Larger quantities quoted on application.

NEW SCHEDULE OF PRICES ON HIVES.

We have adopted for this season a new scale of prices on hives, together with a new method of numbering. With the improvements in hive and frame construction noted elsewhere, it seemed necessary to adopt a different number to designate the improved hive so that we could distinguish between orders made from the old list by the old numbers and those from the new list, in which the improvements will be included. Also as the 10-frame hive is little more in favor we have thought best to quote this in plain figures, instead of saying it will be so much above the price of the 8-frame size. The change in numbering will be a little confusing at first; but if you read the following descriptive matter carefully you will readily see the plan, and will find that by it a very few letters and figures will serve the same purpose as a great deal of descriptive matter. This table of prices and method of numbering goes into our catalog, which is copyrighted and all rights reserved. Hives in lots of 50 will be 5 cents each less, and 100, 10 cents less, than the rate for 20 in the following table.

DESCRIPTIVE LIST OF DOVETAILED HIVES.

The bottoms and covers of various styles are designated by a letter; *i. e.*, A indicates the Danz. bottom, Fig. 7; B is the ordinary bottom, Fig. 5; C is the bevel flat (Hig.) cover; D is the Danz cover, Fig. 3; F, the flat cover; G, the gable cover, Fig. 4. The furnished bodies and supers are designated by a figure to distinguish the various styles of furnishing: 5 indicates a body, with frames and division-board; 6, the same with foundation-starters added; 1 indicates the super with section-holders and followers; 2 indicates the same with separators added; 3, the same as 2 with sections added; 4, the super complete with starters; 8 indicates a 5¾-inch super, with extracting-frames and followers; 9 indicates the same with starters added.

By putting together the letters and figures indicating the parts you desire in a hive, and adding together the price opposite each part, you can make up any combination you desire. We list under their numbers made up in this way only a few of the regular combinations kept in stock. If you do not use the designating letter for cover or bottom we will send the bottom and cover designated by BD or BC. If you want frames pierced and wire included, add letters PW to numbers, and ten cents for each five hives to cover expense.

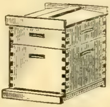

FIG. 12.

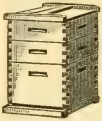

FIG. 13.

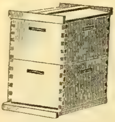

FIG. 14.

No. BD5 is a one-story hive consisting of bottom, cover, and body, with frames and division-board.

No. BD52 as shown, Fig. 12, is a 1½-story hive for comb honey complete except sections and foundation-starters; nails and separators included; corresponds to old No. 1E.

No. BD64 is a 1½-story hive complete for comb honey, with foundation-starters and nails, corresponding to our old No. 1.

No. BD522 is a 2-story hive for comb honey, Fig. 13, corresponding to our old No. 2E.

No. BD644 is a 2-story hive complete for comb honey, corresponding to our old No. 2. These hives are made by adding an extra super to the 1½-story hive shown, Fig. 13.

No. BD55 is a 2 story hive for extracting; corresponds to old No. 5E.

No. BD66 is the same with foundation-starters for the frames; corresponds to old No. 5 without honey-board.

No. BD58 is a 1½ story hive for extracting, with 5¾-inch supers, with frames and followers.

No. BD69 is the same with foundation-starters for the frames above and below.

Table of Prices of Dovetailed-Hive Parts and Complete Hives.

Old-style hives ordered by old Nos., packed as formerly, furnished at 5c each less than in the following table.

See above for explanation of letters and figures. Nails included with all hives and parts. Hives are listed both 8 and 10 frame size. In ordering, indicate the size thus: BD52/8 for 8-frame, and BD52/10 for 10-frame.	Eight Frame.						Ten Frame.					
	Nailed, painted.	KD in flat.				Weight of 10.	Nailed, painted.	KD in flat.				Weight of 10.
		each	5	10	20			each	5	10	20	
BD5 hive	1 00	80	3 75	6 70	12 60	240	1 20	90	4 25	7 80	14 60	260
BD52 hive, corresponding to old No. 1E	1 40	1 10	5 00	9 20	17 40	300	1 65	1 25	5 75	10 80	20 20	330
BD64 " " " No. 1	1 70	1 30	6 00	11 10	21 00	320	1 95	1 55	7 10	13 10	24 60	360
BD522 " " " No. 2E	1 80	1 40	6 25	11 70	22 50	360	2 10	1 60	7 25	13 80	25 80	400
BD644 " " " No. 2	2 30	1 75	8 00	14 90	28 20	400	2 60	2 10	9 45	17 60	33 20	440
BD55 " " " No. 5E	1 65	1 35	6 25	11 10	21 00	360	1 95	1 50	7 00	12 80	24 00	400
BD58 "	1 40	1 10	5 00	9 20	17 40	300	1 65	1 25	5 75	10 80	20 20	330
BD69 "	1 60	1 25	5 60	10 30	19 60	320	1 85	1 45	6 75	12 20	22 80	360
A or B bottom	15	10	50	90	1 60	45	20	12	60	1 10	2 00	50
C, D, F, or G cover	20	15	75	1 40	2 60	45	25	18	90	1 70	3 20	50
Empty body with rabbets	40	30	1 25	2 20	4 20	80	45	35	1 50	2 70	5 20	90
5 body with frames and division-board	65	55	2 50	4 40	8 40	120	75	60	2 75	5 00	9 40	140
6 body with frames and foundation-starters	75	60	2 75	5 00	9 60	125	85	70	3 25	5 80	10 80	145
Shallow super with flat tins (4¾ in. deep)	25	15	60	1 10	2 00	40	30	18	75	1 30	2 50	45
1 super with section-holders and follower	35	25	1 10	2 20	4 20	60	40	30	1 30	2 50	5 00	70
2 super, same as 1 with separators added	40	30	1 25	2 50	4 80	60	45	35	1 50	3 00	5 60	70
3 super, same as 2 with sections added	50	40	1 75	3 30	6 20	75	55	45	2 00	3 80	7 20	85
4 super, same as 3 with starters added	60	45	2 00	3 80	7 20	75	65	55	2 35	4 50	8 60	85
Deep super with tins (5¾ in. deep)	25	18	75	1 40	2 40	50	30	20	90	1 60	3 00	55
9 super with frames and followers	40	30	1 25	2 50	4 80	70	45	55	1 50	3 00	5 60	75
8 super with frames and starters	50	40	1 60	3 00	5 80	75	55	45	2 00	3 60	6 80	80

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"They knock headaches clear to the horizon."
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"I was suffering from Neuralgia, and found quick relief."
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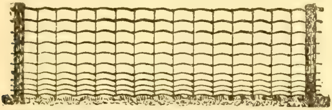

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Notices will be inserted under this head at one-half our usual rate. Advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for csah or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 c. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

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WANTED.—To exchange nursery stock for clover seed. T. G. Ashmead Nursery, Williamson, N. Y.

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WANTED.—To exchange blackberry and raspberry plants for bees, bee keepers supplies, honey, extractor, incubator, shotgun, rifle, or fly-rod. Write me what you have to exchange.
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60-lb. cans delivered at 25 cts. each in exchange for honey. Cans good as new.
J. A. BUCHANAN & SONS, Holliday's Cove, W. Va.

WANTED.—To exchange bees for incubator.
L. D. GALE, Stedman, N. Y.

WANTED.—A competent and reliable bee-keeper who would like to spend the coming spring in the South, to write immediately to
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WANTED.—Power wind wheels; one or two horse tread power; 10-in. foundation-mill; "L." frame Given dies; Duplex grinding-mill, in exchange for No. 3 Wilson farm mill, gold-filled watch, nearly new high-grade cycle, comb honey.
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WANTED.—To exchange a Gormully & Jeffery ladies' wheel in A1 repair, and a Monarch gents' wheel that is strong and serviceable ($80.00 for both wheels), for nice white extracted honey.
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Box 106, Shamokin, Pa.

WANTED.—To exchange Japan plum-trees for extracted honey or offers. Abundance, Burbank, and Satsuma by mail.
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WANTED.—To exchange nice comb honey for thin foundation. L. WERNER, Edwardsville, Ill.

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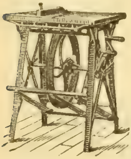

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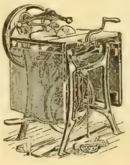
Pearl Gooseberry! Best in the world; 50c each, $2.50 per half-dozen, $5.00 per dozen. Mention GLEANINGS. T. G. ASHMEAD NURSERY, Williamson, N. Y.



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Honey Column.

CITY MARKETS.

San Francisco.—*Honey.*—Fancy white, 10@11; No. 1 white, 9@10; fancy amber, 7@8; No. 1 amber, 6@7; fancy dark, 5@6; No. 1 dark, 4@5; white extracted, 5@5¼; amber, 4@4½; dark, 2½@3; beeswax, 23@25. Demand and stocks are light.

Henry Schacht,
Feb. 1. San Francisco, Cal.

Kansas City.—*Honey.*—Fancy white, 14; No. 1 white, 12@13; fancy amber, 11@12; No. 1 amber, 10@11; fancy dark, 10; No. 1 dark, 8; white extracted, 5½@6; amber, 5@5½; dark, 4@4½; beeswax, 25.

C. C. Clemons & Co.,
Feb. 8. 423 Walnut, Kansas City, Mo

Minneapolis.—*Honey.*—Fancy white, 13@14; No. 1 white, 11@12; fancy amber, 9@10; No. 1 amber, 8@9; fancy dark, 7@8; No. 1 dark, 6@7; white extracted, 6@7; Utah, 5@6; amber, 5@6; dark, 4@5; beeswax, 23@26. Market very quiet, and little doing. Comb honey fairly well cleaned up, and shipments salable on arrival.

S. H. Hall & Co.,
Feb. 8. Minneapolis, Minn.

Philadelphia.—*Honey.*—No. 1 white, 9@10; fancy amber, 8@9; No. 1 amber, 8; fancy dark, 7; white extracted, 6@7; amber, 5; dark, 4; beeswax, 26. The honey market is much depressed at present. Very little fancy comb, and not much call. The season is getting late, and we are pushing extracted honey.

Wm. A. Selser,
Feb. 8. No. 10 Vine St., Philadelphia, Pa

Detroit.—*Honey.*—Fancy white, 13@14; No. 1 white, 11@12½; fancy amber, 10@11; No. 1 amber, 9@10; fancy dark, 8@9; white extracted, 5½@6; amber, 5@5½; dark, 4; beeswax, 25@26.

M. H. Hunt,
Feb. 8. Bell Branch, Mich.

Cincinnati.—*Honey.*—No. 1 white, 12@13; No. 1 amber, 11@12; No. 1 dark, 10@11; white extracted, 5@6; amber, 4@5; dark, 3¼@4; beeswax, 22@25. Demand for all kinds of honey is exceedingly slow.

Chas F. Muth & Son,
Feb. 8. Cincinnati, O.

St. Louis.—*Honey.*—Fancy white, 12½@13; No. 1 white, 11½@12; fancy amber, 9½@10; No. 1 amber, 8½@9; fancy dark, 8@8½; No. 1 dark, 7@8; white extracted, in barrels, 5@5½; in cans, 6@6½; amber, in barrels, 4@4½; in cans, 5@5½; dark, 3½@4; beeswax, 23½@24. The movement of honey has been rather slow this season.

Westcott Commission Co.,
Feb. 8. 213 Market St., St. Louis, Mo.

Chicago.—*Honey.*—Fancy white, 12; No. 1 white, 10@11; fancy amber, 9@10; No. 1 amber, 7@8; fancy dark, 7@8; No. 1 dark, 7; white extracted, 5@7; amber, 5@6; dark, 4@4½; beeswax, 25@27. Very little call for honey of any kind.

R. A. Burnett & Co.,
Feb. 8. 163 So. Water St., Chicago, Ill.

Boston.—*Honey.*—Fancy white, 13; No. 1, 11@12; fancy amber, 10@11; white extracted, 6@7; amber, 5@6; beeswax, 25. Dark comb honey will not sell in this market; but fancy honey in cartons will go very well. Supply fair, and light demand. Beeswax is in short supply, and wanted.

E. E. Blake & Co.,
Feb. 8. 57 Chatham St., Boston, Mass.

Columbus.—*Honey.*—Fancy white, 12½; No. 1 white, 11; fancy amber, 9. Weather very cold, but very little doing.

The Columbus Com. & Storage Co.
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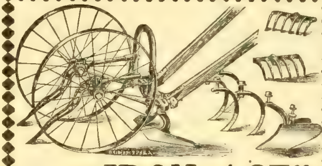

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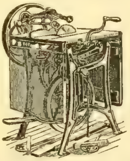

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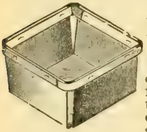

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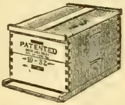

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STRAY STRAWS

FROM DR. C. C. MILLER.

TRY HONEY in your hot drinks. Costs more, but it's more wholesome. I use it in coffee.

I DON'T KNOW whether I can fully answer F. Greiner's question why bees gnaw the cappings of sections in one case and not in another; but I know one thing that probably he knows, that blood makes a big difference. Black bees are ever so much worse than Italians.

W. K. MORRISON is one of the men who have faith in *Apis dorsata;* but he believes in common sense, and says, in *American Bee Journal*, "Many will agree with Dr. Miller when he suggests that those who go after new races try them on their own ground, for it is common sense."

FOR PERMANENCY of honey sales, give more attention to consumption of honey by children. It's said you can't make honey a staple—people tire of it. I doubt if that's true as applied to children. Let them have it constantly *ad libitum* from childhood, and they never seem to tire of it—at least some of them.

T. P. ANDREWS says I've omitted from the list of defunct bee-journals *The Bee-keepers' Journal*, published by H. A. King & Co., from about 1870 to 1873, when the *Bee-keepers' Magazine* took its place. Practically it was only a change in name, but it should add about three years to the life-lease of the *Magazine*.

THAT BIG CAVE of bees with tons of honey has again been discovered, with a stream of bees like a tar rope two feet in diameter. This time it's in the mountains of Pennsylvania, and the only way to get at it is to blow up the mountain-side with dynamite. The truthful narrator in the present case is the Philadelphia *Times*.

IF F. L. THOMPSON will look far enough back on his files, I think he'll find that I told the very thing he asks for, on p. 81. I've sent honey in a trunk to his State, done up in a paper just like sugar. Simply turn the crock or barrel of honey on its side and let it drain days enough. But it won't work with all kinds of honey.

FRIEND GETAZ, I'm not so sure that your theory, p. 89, that old queens encourage paralysis, is correct. I'm a honey-producer, and have had lots of old queens and many cases of paralysis, but it never amounted to any thing except in one case. Did you ever hear of its being bad in the North? It's you southern fellows that catch it.

IF HALF THE EFFORT that has been expended in securing additional yellow bands had been made to secure longer tongues, it is possible that we might be now selling crops of red-clover honey. [I am glad to see that the craze for yellow bands has very perceptibly declined. Perhaps we can now begin to turn our thoughts toward securing bees for business.—ED.]

HONEY-CARAMELS may be the thing, friend Thompson, that you are groping after on p. 82. They cost less than capsules, and are not so suggestive of medicine. [Dr. Miller sent us a sample of honey-caramels that were just delicious. I believe the recipe originated in his own family; at all events, it is given in the honey-leaflet now for sale, and mentioned in another column.—ED.]

TALL SECTIONS require more foundation to fill them, says C. Davenport, p. 85. With the same thickness of comb, I don't see why an oblong section should take any more foundation than a square one of the same weight. [With the same thickness of comb, no more foundation would be required; but the tall sections contemplate thinner combs, and, of course, that would mean more foundation.—ED.]

IF BUCKWHEAT HONEY has twice as much formic acid as clover, then foul brood ought not to be so bad with buckwheat. Wonder if there's any difference in fact. [If formic acid is going to do any thing toward curing or keeping down foul brood, there will, perhaps, be less of that disease where there are large quantities of buckwheat honey produced. But why should there be more formic acid in buckwheat? Perhaps it requires more of it as a preservative, for indeed this acid is a strong antiseptic.—ED.]

THAT NEW SPELLING on page 77 so "astonisht" the Medina printers that it "knockt" 'em clean out. They got that straw badly "mixt," and the last two lines of the page have "swapt" places. [The "swap" was discovered in our office after it was too late to swap back again. As the lines now stand they make Dr. Miller say just what he did not want to say; yet I hope most of our readers were able to recognize the discrepancy.—ED.]

A FORMER EDITOR—one who had snap too—writes that in the list of defunct bee-journals I ought to have included some that are dead but still appear regularly. Perhaps he thinks it might be said of them as was said by the Irishman of the turtle which walked around long after its head had been cut off: "The crayture's dead, but it's not sinsible of it." [Yes, perhaps there are one or two that might very properly be classed as dead so far as any influence or effect they have upon general bee-keeping is concerned. But, say—if you had mentioned their names, I rather imagine *you* would have found they had a spark of life left.—ED.]

I'M WONDERING what sort of Miller feeder Wm. G. Hewes has when he says, on page 84, "Unless it fits the super very snugly, many bees will be drowned." What's a super on the hive for? and how do the bees get in the feed? There's no possibility of my bees getting drowned unless they get under the cover from the outside. How is it in Medina, Mr. Editor? [No trouble about bees drowning in the Miller feeder, at our yard. In fact, it is absolutely impossible for the bees to get at the feed except through the narrow passageways; and in them the bees can not by any possibility be drowned. Perhaps friend Hewes did not use them in closed supers.—ED.]

I'VE BEEN USING frames with top-bars ¼ inch short at each end, like those on p. 94, and I think it's a fine improvement. I've been using that gauge on p. 95 for two years, and like it. But I like the end-spacer I sent you better, I think, Mr. Editor, than staples. [Yes, indeed. For the last two years a number of letters have passed between Dr. Miller and ourselves regarding the advantages of having a bee-space around the ends of the top-bars; and his experience has been exactly our own; namely, that it is indeed a "fine improvement." But until this year we did not decide to list it in our regular hive combinations. The "end spacer that Dr. Milller refers to is simply a wire nail driven through the end of the projection of the top-bar from the top, diagonally, into the end-bar. This feature will be illustrated a little later on; but it seems that friend Boomhower has been using this device for a number of years. For further particulars see editorials.—ED.

"IN EXAMINING sections in their various stages of progress we invariably find them on both sides alike, drawn out and filled, or so nearly alike that a swinging one way or the other, by greater weight on one side. could not be caused."—*G. C. Greiner*, *page 86*. Friend G., it must be you never have weak colonies or poor harvests. I've had lots of sections fastened to separators by lop-sided building. But since using bottom starters I've no trouble. [Dr. Miller uses square sections. In fact, I believe he always has used them; so the trouble with comb being fastened to the separators would be little if any worse with tall than with square ones. Dr. Miller very truly says, a bottom starter would remedy that. See Doolittle's article in current number.—ED.]

HOW TO BAKE honey-jumbles is inquired about by "Texas." *We* bake 'em just like cookies. Mix together the honey, molasses, and lard. Add the salt. Dissolve the soda in the water, and stir thoroughly into the mixture Add the vanilla. Stir into the mixture a part of the flour, reserving the rest to roll out with. Roll about half an inch thick, and cut out with a doughnut or jumble cutter, which leaves a hole in the center. Grease the pans before putting in the jumbles, and bake in a medium oven. [The complaint at our house in regard to making jumbles is that the dough is rather too sticky to handle easily; still, the women-folks around Medina seem to make quite a success of the jumbles. Every once in a while an employee will lay upon my desk samples of his wife's make, and they are all good. This goes to show that the recipe is a success, and that any good cook can make *good* jumbles. The home-made will be better than the bakers', because, as a rule, a finer article of honey will be used.—ED.]

I have a great deal of faith in the bee-sting cure for rheumatism, having suffered a number of years, and since I have kept bees it has disappeared. Whether the stings did it, or whether eating honey did it, I can not prove; but I am inclined to give the bees the credit.

Ottawa, Ont., Jan. 11. J. FIXTER.

WOOD SPLINTS FOR FRAMES OF FOUNDATION.

GLEANINGS for Nov. 15th reached me here. Referring to your editorial comments, that wiring would be more expeditious than setting of foundation with wood splints, I would state that about 120 frames per hour can be easily filled by experienced hands ready for the bees to begin work upon, using 7 splints per frame, which is a sufficient number of splints for medium brood foundation. B. F. AVERILL.

Middletown, Mass., Jan. 1.

Ridge-Pole Musings

By R. C. Aikin.

ALFALFA HONEY; ITS CHARACTER; TENDENCY TO GRANULATE.

The quality of this honey is very good. My experience is that it is fully the equal of white clover in respect to color, though some from other States or elsewhere report it as amber in color. Possibly soil or other conditions have to do with color; but my opinion is that the great bulk of it is white. In body, it is very heavy. It frequently becomes so very thick and tenacious that it can not be successfully extracted unless at a temperature of nearly 90 degrees F. In flavor it is quite mild. There is an entire absence of that sharp twang peculiar to white clover. Many people who could not eat honey in the East are very fond of alfalfa, and eat it with no evil effects. It is a rare thing to find one who dislikes the alfalfa flavor if he likes honey at all, and very many will eat it who would not eat other honeys.

Now, while the body, color, and flavor are excellent, there is one feature that is against it; and that is its tendency to granulate. Alfalfa comb honey, as a rule, will not keep over winter without granulating to some extent, both in brood-combs and sections. Let me say right here that I anticipate a thumping from some of the alfalfa-producers; but, thumping or no thumping, I want to tell the truth. If telling this truth about it will injure its reputation, it will have to bear it; but the fact remains that its good qualities will find it a market in spite of the one failing.

Extracted honey will candy solid in ten days to six weeks from extracting. With me it does this *every time.* This candying is a more serious question when extracting than if comb is produced. If the last extracting be a month later than the first, the first will be solid in tanks, cans, or whatever in, before we have time to get it in shape to retail. Wherever a bit of the honey stands for two or three weeks it *must be heated to get it out.* This question has become so serious with some of us that we think of adopting altogether different methods from those now in vogue in the matter of marketing extracted honey. The marketing question I will handle by itself, so drop it here.

OTHER HONEY-PLANTS.

The noted Rocky Mountain bee-plant (cleome) grows quite freely in some parts of the State. This plant is a great favorite with the bees, and, like the sweet clover, will be covered with bees. Several times I have had occasion to photograph it, but it seemed that the bees could not be kept off long enough to let it become still. This plant is quite peculiar in some of its habits. It seems to prefer a dry soil, often growing on gravelly, barren-like places that grow little else. While it will grow luxuriantly on good soil, it evidently will not thrive with "wet feet." It is strictly an annual, growing two to six feet high. When crowded together, plants usually attain an average height of two to three feet; but if not crowded they grow four to six feet, and spread their branches to a diameter of three to four feet. Like nearly every other plant that succeeds in dry soils, it has the characteristic long tap root. The bloom is a pinkish purple, and a very pretty one.

The cleome honey is just enough amber that it can not be strictly called a white honey. The flavor is a little bit rank at first; but when well cured it becomes rather mild and not unpleasant. In flavor I would class it with heart's-ease, and in color a little whiter than heart's-ease.

SWEET CLOVER.

This plant is so well known that it needs no detailed description. It also has the penetrating root, grows on almost any soil, and yields a good grade of semi-white honey. The plant has been said to prefer a dry soil. In Colorado it grows well along ditch-banks, on bottom lands, and near the margin of swamps. I should say it favors a rich, moist, but well-drained soil. I say it grows on ditch-banks, and so it does. The Easterner would associate a ditch with a swampy, heavy wet land. In this country a ditch is rarely built for *drainage* purposes in soggy land, but through high, dry, rich farm land, to convey water to irrigate growing crops. The soil is rather clayey, and, though the ditch have a continual running stream, the water does not "percolate" (seep or waste through the soil) sufficiently to keep alive a shallow-rooted plant a distance of one rod from the ditch. Our ditch-bank, then, means a well-watered, well-drained soil; and in such, sweet clover thrives.

I have no other honey-sources that give a surplus except sometimes red clover. The red-clover honey is almost an amber, and has the decided clover twang. I would class it as first grade, but at the bottom of the grade.

We have a weed that I think is peculiar to the West, and of which I can not recall the botanical name. It has the sunflower form of bloom, about one inch in diameter, and yellow. The plant grows about one to three feet high, and blooms in August and September. It is called here resin-weed, because the leaves and branches have a glossy, gummy surface. It yields much pollen and a little honey. The honey has a golden tint and somewhat rank flavor, though not bad, and candies very quickly. One of our apiarists, speaking of it, said, "When the bee works on the resin-weed it hies itself home quickly to unload before the honey candies in its sac."

CONDITIONS UNDER WHICH THESE PLANTS YIELD HONEY.

There seems to be something in weather conditions that none of us understand, that seems to stop all secretion of nectar when we would expect it to be otherwise. Such times we *seem* to have right conditions, yet no secretion takes place. This I can not at all explain. Aside from this I will speak only briefly of conditions. I find alfalfa yielding well in steady settled warm weather, preceding thunder-storms, and right through *local* thunder-showers; but immediately following a *general* storm the secretion is very light. Cleome yields best early in the morning, and when the weather is slightly cool and damp. Work begins much earlier in the morning on cleome than on alfalfa, and ceases earlier in the day. This would indicate that heat is necessary for alfalfa, and cool weather for cleome. Sweet clover seems to be less affected by either heat or cold, though I am inclined to believe that it does best with a good degree of moisture. I know bees will work it in damp heavy weather. Sweet clover, I think, is not worked so early in the morning as cleome, the latter being worked promptly as soon as the bees can get out in the morning. There is one thing that I have observed for many years—that bees are eager for pollen in the morning. There is considerable primrose in my neighborhood, and the bees will rush for that in the very early morn, and come in with great trailing loads of pollen. Corn is also visited in the early morn. I do not know whether or not it is a provision of nature that the pollen-bearing plants should yield in the morning more than at any other time, but I do know that more pollen is gathered in the early part of the day.

The past two years have been very poor honey seasons in Colorado. Both years we had a good bloom. I thought each season that the prospect was good for a crop of honey, yet it seems there have not been poorer years since the country was settled. The year 1895 was what is called there a wet one. A wet year means one in which there is almost sufficient rain to grow crops without irrigation. Neighbors continually asked if the bees were doing well. I would reply they were not. Why? What is the matter? Is it too wet? Then 1896 was dry and hot—not unusually dry, but unusually hot. For Colorado there was a reasonable amount of rain, but a shortage of snow in the mountains to supply irrigating-water, hence many farms suffered for water, while others had a plenty. Again, the people would ask the same question, only this time it was "too dry" instead of too wet. There is yet that something which we do not understand that causes the bloom to secrete or withhold its nectar. I believe that good growing conditions are necessary in all cases, but I can not get rid of the thought that electricity has much to do with it.

OBSERVATION AND EXPERIMENTS.

I wish there could be a concerted action on the part of a number of stations throughout the United States, each station to keep a daily record of barometer, thermometer, precipitation, clear or cloudy, whether storms are local or general, both general and particular weather conditions throughout the year; and at all times during the honey-flows, or when there ought to be flows, have two or more colonies on the scales, and a daily record of gain or loss. I say two or more colonies, because I am satisfied that, when there are different *kinds* and *fields* of bloom at the same time, bees of different colonies will be working in different fields. I believe this because certain colonies will rob at certain places, and other colonies in the same yard not know where the honey is, or even find it at all. I believe there is some sort of manner of communicating or imparting the whereabouts of sweets, and one colony may get started in one field and another in another field; then if the one on the scales should be on a certain field that is cut down, there would be an interruption in the work of that colony that would not appear in another. If we are to get at the truth promptly and definitely, we must do both comprehensive and detail work.

I believe that soil has some influence on the secretion. It may be that certain plants must have certain elements in the soil that are peculiar to their health and growth in order that they may yield well. As before explained in these articles, there is a great diversity of soils and climate in Colorado. Loveland is in the Big Thompson Valley. Fort Collins is in the Poudre Valley. These places are only about 15 miles apart, yet there is considerable difference in the soils. Each valley is watered by the stream of the valley. My observation for the past seven years is that the honey-flows in the Poudre Valley have been better than in the Thompson Valley. The climate is the same, for it is an open country, and very similar in nearly all respects.

Now as to some method of getting these observations accomplished. I do not know how we can do it; but I have no faith in government work, because there is too much patronage to get the proper persons to do the work. If the government does undertake it, it takes a long time to get the thing a going, and we lose interest before it is accomplished. We must wait and work for appropriations. After the work is done we must wait for all the red-tape business before it is reported. I am not attacking the government, nor saying that it is not able to do such work. It is able, and should do it; but there is too much of the "party" and "spoils" element to get what we want. I am sure that many bee-keepers throughout the country would gladly do the work if they were furnished with the facilities. Many are now doing just such work on their "own hook;" but the good results are lost by not having the work complete and systematized, and because there is no way to get the results together, and compared, etc.

I have brought up this subject now that perhaps the fraternity may get together in some way the coming season in some thorough observations in regard to the pursuit. I must say that apiarists are not organized as they should be; that our product is practically turned loose to get to the consumer in a haphazard manner. Comb honey is much better marketed than the extracted, but there is need of reform in both. I propose, however, to discuss this matter later. so leave it here.

PRINCIPLES OF HONEY-CONSUMPTION; POSSIBLE APPLICATIONS.

ONE-OUNCE HONEY-PACKAGES.

By F. L. Thompson.

Communications to the bee-papers on selling honey are apt to be misleading on this point. They always tell how people who at first said, "I don't like honey," after being persuaded to take some of a first-class quality changed their minds, and ever afterward liked it very much, and bought in quantities. This is no doubt true so far as it goes. But there are plenty of people who quickly get tired of the very finest honey, when they try to eat it according to the mistaken notion that it is always a staple food. Why not recognize this truth? One woman, after several times buying my best honey, both comb and extracted, said she would not want any more that winter, as her family had become tired of it, and preferred maple syrup on their buckwheat cakes. I couldn't blame her, for I prefer maple syrup myself for that purpose. The truth is, there is a large class of people to whom honey is a radically different article of food from syrup, and can not possibly be eaten in the same way and with the same relish. People who belong to the other class, those whose palates and stomachs accept honey as a superfine syrup, to be consumed in like quantities, will be surprised at this assertion, and think there is something wrong about it. But in this matter they should not judge others by their own experience. Articles by "Novice" on pages 92 and 300 of GLEANINGS for 1895 recognize the true state of affairs. *De gustibus non est disputandum.*

What applies to private tables applies also to hotels and restaurants. But in applying small individual portions as a remedy, we are met with a difficulty, though not an insuperable one. There is no satisfactory package at present available. It must be quite cheap, for the quantity of honey is small; it must not be expected to be returned for refilling, for I am informed that restaurant people are such a careless set as to put this out of the question; hence it must be of a kind that can be discarded after getting the honey out. Glass is too expensive. Perhaps hardened paper would do. Or possibly a special size and shape of gelatine capsules (of course, not to put in the mouth, but simply as a package) could be ordered from manufacturing chemists. They would show off the honey nearly as well as glass. Why should not some of the supply firms take hold of this thing and keep such packages in stock? The first step is the hardest. Many bee-keepers, who would be deterred by the bother of a special order, might try this if a suitable package were within easy reach. Besides, it would thus be cheaper.

Supposing we had a suitable package, holding, say, an ounce, selling at 25 cents a dozen (retailing at three cents, or two for five), what would be the advantages of selling honey in this way? It would do away with the surfeiting evil. It would give the customer a good taste, and make him want another next time. The adhesiveness of honey would not get a chance to assert itself in the minds of the powers that settle whether honey shall or shall not be consumed, for when once presented in small portions it is pretty sure to be eaten. The dish-washer would not get mad, nor the proprietor grumble at the added labor which side dishes usually impose. It would also put honey in the right shape to be sold to those groceries that locate opposite schoolhouses, and in general would make it a valuable addition to lunches.

By being made square inside, and as wide at the mouth as in the body, the package would also do for comb honey. The bee-keeper, for 30 cents or more a pound net, could well afford to use shallow frames instead of sections, cut up the comb with a square tin plug-cutter, and put the pieces into his paper jars or capsules—certainly much easier to do than to prepare five-cent sections, as was talked of some time ago. This plan would also be the most satisfactory solution of the unfinished-section problem, for the greater portion of the honey (by weight) in such sections is finished, and as good as any to take plugs out of. It would also be a good way to use up all partially defective section honey, thus raising the grade of what remains.

But suppose these inducements did not exist: there is another cogent reason for working up this kind of trade in connection with the ordinary methods. It would be the best kind of advertisement. In this way we could bring honey to the favorable notice of hundreds of people who otherwise would never wake up to the fact that honey is cheap and enjoyable. Even if the plan did not pay in itself, it would pay in that way. Nor is this an untried theory. In the *Review* I have already written, or will write, of confirmatory evidence, and will repeat it here more in detail. In *L'Apiculteur* for July, 1896, page 278, appeared this paragraph: "The sale of honey in little flasks, for individual portions of 30 to 35 grammes, is increasing. These flasks, for restaurants, are sold for 15 centimes, by the firm of Salmon, 8 Rue de Acacias, Paris. There are also flasks for double individual portions, which contain 60 to 65 grammes, of which the price is 25 centimes. It is a new kind of trade, which aids in spreading the use of honey; it would be a mistake to neglect it." In the *Bienenvater* for November. 1896, appeared this paragraph: "Herr B., in P., formerly lived in a Moravian village, where a disposal of his honey was scarcely to be thought of; the peasants were poor, and strangers and summer guests did not look up the barren region. But the place was the breakfast and dinner station of a railroad. Herr B. made arrangements with the proprietor of the restaurant to place his honey-glasses on the counter for a small recompense. For 10 or 20 kreuzers [5 or 10 cents] the travelers received a little glass of honey and a roll; the glass was wrapped in paper containing brief information about honey, with the address of the producer. The business was a brilliant success; he no longer had to concern himself about disposing of his honey elsewhere, and many of his chance customers became lasting ones."

I am strongly of the opinion that individual portions should be confined to comb honey alone. If once this thing were started with extracted honey, the gates would be opened to the swindlers to crowd in with imitations, and ruin the trade. But with comb honey we are sure of no competition except from other people's pure honey, which is what we want, for the extension of honey-consumption means money in our own pockets in the future. If the customer prefers liquid honey, a slight manipulation with the spoon, which suggests itself to any one, will enable him to secure the greater portion in a liquid form. This is easier done with a small chunk of honey in a special vessel than when it is lying on a plate.

I have not tried this, having no honey to do it with this year; but I am so impressed with the principles involved that I conclude to lay it before the readers of this journal, in the hope that the idea will provoke comment, and, if necessary, criticism. I never did believe in that apicultural pedantry which plumes itself on such sayings as "facts, not fancies," and "cackle when the egg is laid and you have seen it," forgetting that all business facts were fancies at one time.

It is worth while considering whether it is enough to merely put our honey on the market, and let the commission men and grocers do the rest. They are not interested in it as we are. It is also worth while considering whether it will pay to waste much energy in boosting those uses of honey which are plainly subject to competition from other quarters, such as in cooking and in medicine. Honey in its own field is entirely distinctive and unique, and can have no competition. Though this field is quite limited in comparison with other foods, it is a question whether the general recognition of honey for just what it is would not be equivalent to a demand far greater than the supply. In order to attain this end, it would seem to be desirable to make a study of the underlying principles of honey-consumption, and work accordingly.

Denver, Col.

COUNTING THE VOTE.

W. D. FRENCH'S REPLY.

Mr. Editor:—Referring to comments on page 60 in Gleanings, you say: "I shall be very greatly surprised if the proposed scheme for amalgamation carries; and, moreover, one of the men whom he (Newman) has recommended to count the votes, has, in the *Progressive Bee-keeper*, criticised most severely the *American Bee Journal.* Such a person can hardly be impartial. I have nothing against Mr. French. Outside of his very apparent prejudice he would be as good as any man to count the votes and certify the results to the General Manager; but it certainly would have looked very much better, in view of the position that Mr. French will occupy, if he had kept still."

Now, Mr. Editor, I am sure you do not intend to cast insinuations or reflections upon the honesty of this count, or infer from my position as taken in the *Progressive Bee-keeper* that I would not be impartial in counting the votes for the Union. Such a proposition on your part would be wholly conjectural, and without foundation. I never sought the appointment on the returning board, though, inasmuch as it came to me, I shall do my duty properly, without regard to my own convictions, or those of any other member of the Union. Every man has a perfect right to discuss all questions vital to his interests, morally and constitutionally. Though no one need fear the honesty of the count, or sling baseless insinuations into the eyes of the returning board.

National City, Cal., Jan. 28.

[I still think, in view of the position you will occupy, or have occupied, perhaps, by this time, if you had said nothing either pro or con it would have looked better. I am glad you are not prejudiced, and believe you when you say it. If the result is against my way of thinking, I shall not accuse you or any one else of unfairness. To do otherwise would be equivalent to saying, "If you can't play *my* way I won't play at all.—ED.]

LOCKING HORNS.

DOOLITTLE SQUARES UP TO DR. MILLER; COMBS BEING BUILT TO SEPARATORS; CAUSES, AND HOW TO PREVENT.

By G. M. Doolittle.

On page 884 of GLEANINGS for 1896 I find this: "It would be fun to see Dr. Miller and Doolittle lock horns. GLEANINGS will furnish the arena." I have kept away from that "arena" ever since, in hopes that Ernest would ask the good doctor if he had "horns." Should that question be asked Dr. M., I should expect the answer to be, "I don't know." And if Dr. M. don't know whether he has "horns" or not, I suspect he has none, and I don't wish to be in an arena with any one trying to lock horns with him, when he has no horns. Dr. Gallup used to tell how he and a schoolboy mate used to hold the old cat by turns while the other hit him between the eyes to see what effect it would have on the cat; so perhaps it will do no harm for me to hit Dr. Miller a clip between the eyes to see what effect it will have, horns or no horns.

Now, doctor, "right face!" Did you have *many* combs built at their lower edges to the separators when you were using the 4¼x4¼x2-inch sections prior to the time you studied out your "bottom starters"? Tell us; did not the trouble with swinging foundation begin when you reduced those sections to seven or eight to the foot, instead of when you were using six to the foot? If it did not, then you are an exception to the general rule. Now, doctor, we'll give you time enough to turn your gaze toward F. A. Salisbury, on page 17 of GLEANINGS for 1897. Don't you see that, in order to keep the tall sections down to where they will weigh a little less than one pound (so that the grocerymen may be able to buy our product at pound figures, and sell it at section figures), brother S. cut his sections down to 1½ inches in width, instead of allowing two inches, as is the case of the square section? Yes, you see that. Well, now suppose that Bro. S. had kept his tall sections at 2 inches, and cut his square ones down to 1½ inches, do you suppose he would be telling us how the foundation in the tall sections was bound to get attached to the separators, while that in the square sections behaved itself like a "little man"? Ah! you begin to see it, do you? Well, suppose he cut those square sections down to ¾ of an inch (about the smallest space in which bees will draw out foundation at all), so that he had only about ⅜ of an inch between the foundation on either side and the separators, how many sections do you suppose he would have that were perfect, without brace-combs? Twenty-five per cent? Now I am ready to admit that, as any (width of) section increases in height, the liability of brace-combs at the bottom increases, where foundation is used, as it would be hard work to keep the foundation true in a two-inch-wide section—if the same were a foot high, in any event; but I *do claim* that the reduction in width of section has more to do with the brace-comb nuisance than all else combined (up to the present time), except not seeing that hives are level, and slip-shod putting in of foundation.

Now, doctor, "right face" again. What is the trouble with you and Salisbury, that your bees are determined to draw out one side of the foundation before they do the other, thus curling it, and this curling causing it to be fastened to the separator? There can be only two things, that I know of, which will cause this. First, too weak colonies to work in the sections to the best advantage, and, second, putting on too much surplus room at once. Is the first the trouble with you? Oh! I see the effect. You're shouting back, "No, sir, 'ee!" Well, I judge you are right in this, generally. But how about the other? Do you not know that the veteran bee-keeper, Mr. Manum, who always produces a fancy article of honey, which sells at top prices, as a rule puts on only from one-fourth to one-half the amount of surplus room at one time that you and Salisbury do? In this way, as soon as the sections are on the hive every section is filled completely with bees; and if any foundation is drawn out the whole is so drawn, and thus the foundation has no chance to curl. Do you see? "Oh, yes!" I hear you say, "that is one of your old hobbies; but there is too much work to that." Will you tell us which is the more work—doing as Manum does, or putting that extra starter in each section? For me I prefer the Manum plan.

Now, doctor, I am going to let you look off again. Just you look at Bro. Pettit, on page 51, GLEANINGS for 1897. Do you see how he runs the bees up, with their loads of honey, on the other side of the sections (from the center) and thus overcomes your difficulty and Salisbury's? Well, what do you think of that? Don't you know that Doolittle, after days and weeks of watching with his one-comb observatory hive, told the world that he never saw *one single bee* go with its load of honey as it came in from the fields, up to the surplus-arrangement, but that all gave their loads to younger bees before any reached as great a height as the middle of the brood-comb? Then you also remember how at a certain point, after you had changed queens, giving an Italian queen in the place of a black one, that you saw only black bees going in and out at the entrance, when honey was coming in, while a look at the surplus showed very few but Italian bees at work there; this also showing that no field-worker ever deposits its load of nectar in the cells in the surplus-apartment. Yes, you are familiar with that. Well, how do you account for Bro. Pettit's success? What! "don't know"? Suppose we admit that the raising of the hive (as he tells us about), for the time being, retards the bees from entering the sections till the colony gets strong enough, or till some hot wave comes along, then they go in and "possess the land" *en masse.* This puts his bees in the same shape that Manum keeps his, and in just the shape all colonies should be in to build and complete perfect comb honey in sections. If we have, as a multitude of bee-keepers, erred in any one direction, I believe that to have been in the direction of trying to "stretch" our bees out too much, and in this way have received, as pay, imperfect combs of honey, together with thousands of unfinished sections in the fall.

Now, doctor, in letting your crippled, dehorned frame crawl out of that GLEANINGS arena, let me turn your face toward Bro. Ernest Root. What! scent the thing at once? Oh, yes! I see you do! Yes, that's it exactly! When that comb foundation with ⅜-inch side-walls comes out, all of this trouble, worry, fussing, and locking-of-horns-in-the-arena matter will be at an end. Then we can use strips only an inch or two wide, and they will not turn, twist, or be eaten full of holes by the bees, or use tall or square, plump or lean sections; while if we fill the sections full we can secure as much section honey as we now do extracted.

And now as we agree again, or agree to disagree, at the worst, you just say to E. R. R., as you leave the arena, that the price of that ⅜-inch side-wall foundation must not be very much above the square-foot price of the ordinary thin foundation, or the arena will be full of blood and fur, from the many disappointed gladiators who will fight over the price.

Borodino, N. Y.

[From the very beginning we have constantly kept in mind that the new deep-cell-wall foundation should be sold at a price not very much in advance per square foot of the ordinary thin foundation; and while we shall not probably be able to realize that point this year, owing to the great expense in experimenting, in making hydraulic presses, dies, etc., we hope to be able to do it next year. The price of any commodity must not exceed what consumers can afford to pay. If for instance, the new deep-cell foundation costs three or four times as much as the ordinary foundation, bee-keepers would not buy it, and consequently it could hardly be called a practical success — see editorials.—ED.]

REASONS FOR THE TWO-STARTER PLAN; DR. MILLER WHACKS BACK.

So the editor would like "to see Dr. Miller and Doolittle lock horns." Naughty editor! Would like to get two little boys into a fight! Well, I don't know any fairer man to fight with than Doolittle; and whether he comes off victor or vanquished, he's always good-natured afterward.

It looks a little as if my "Straw" on page 884 was written in reply to the article on page 861; whereas it was written a week or two before I saw page 861. For some reason a good deal has been said lately about the matter of having sections built to separators. Whether my theory is correct or not, the fact remains that formerly I had no little trouble of the kind, and latterly no trouble of the same kind. That is, formerly a section was often built to the separator at the central part of the lower edge of the foundation, and in the few instances that now occur it is at one side, and comes from careless work failing to fasten one end of the starter to the top-bar of the section.

Friend Doolittle says, "The greatest cause for attaching combs to the separators lies in not having the hives stand level." When I read that I said to myself, "Doolittle's off; for a hive would have to be a long way out of level to bring the foundation within ⅜ of the separator." Then I went to figuring, and was surprised as well as somewhat humiliated to find that, with sections 1⅞ wide on an eight-frame hive, and starters coming down to within ¼ in. of the bottom, one side of the hive would need to be only a little more than 2 in. higher than the other to make the bottom of the starter come within ⅜ of the separator. Now, it's easy to say that hives are not likely to be so far out of level as that; but one who has always done his leveling by the eye might be quite surprised on applying the spirit-level to find how far out of true his hives are; and I'm afraid there are a good many hives, especially on a hillside, that have one side nearly or quite two inches higher than the other.

But in my own experience, leveling the hive and obviating all the difficulties Doolittle mentions would still have left 19 cases out of 20 unremedied; for the hives were leveled with a spirit-level, full sheets of foundation were correctly put in, the sections were not put on until the harvest was ready and the colonies were fairly strong, and still the central part of the starter was attached at the lower edge to the separator. I think the trouble was that the honey-flow was not sufficiently strong, and perhaps that would come under the head Doolittle gives as putting on sections too early. Still, if I had waited till the trouble was over I would not have put sections on at all; and as it was, I got something of a crop.

The trouble came very much as Doolittle describes it, only, instead of curling at the sides, it was the central part of the lower edge of the foundation that reached the separator, if I remember correctly. The honey came in so slowly that, instead of being put all over, it was put on the inner surface of the foundation; and the cells on that side being drawn out while the cells on the other side were left untouched, made the starter swing over to one side.

If the starter had been fastened to the bottom, of course it could not have swung over. Nowadays I put in a bottom starter, and the two starters will be fastened together before there's any chance for the swinging, so that proves a sure cure. If Doolittle would use bottom starters I suspect he would gain by it. He says he has so far overcome the trouble that "hardly one section of honey out of 300 is defective along this line." I think that with me not one in 3000 if indeed one in 30,000 is defective "along this line." I don't mean I never have any defective sections. Sometimes the plate of the fastener is carelessly used when too cold, and one end of the foundation drops, or the whole starter falls to the bottom; but the chief difficulty that I formerly had was in the starters being swung over against the separators, and since using bottom starters that difficulty has disappeared.

It's only fair to say that I sometimes have trouble with bottom starters. It is natural that they should tend to fall over, and too often they obey the natural tendency. I think friend Doolittle is right in saying drawn-out comb would be a help; but even then I think I would use bottom starters. It makes a pretty sure thing of having all solidly built to the bottom. But for the bottom starters I'd be willing to pay a big price for foundation with cells well drawn so it could stand up alone.

Now say, Doolittle, I'm willing to own up that, where hives are not level, there may be more trouble than I supposed, although that didn't cause the trouble at all in my case; and if you'll admit that, in my case, the trouble was the poor seasons why, we'll shake hands and be friends again. But, mind you, this does not count the first chance I get to fight you about something else.

A FEW WORDS TO MR. DANZENBAKER.

On page 891 you mention a Straw which questions whether "bees have to stop to gather and chink in propolis before commencing to store honey in the supers." You urge the importance of warmth, at some length. But, my dear sir, that is not the question at issue at all. I said nothing as to whether it was a good or bad thing to have the supers warm. The question was whether the bees stop to chink in propolis before commencing to store. If your argument has any thing to do with the case, it is that, because it is better to have the supers warm, *therefore* the bees make them warm before storing in them. But bees don't always do just what we think best, and, moreover, it seems to me it would be very poor reasoning on their part if they should decide to wait until cracks were filled before commencing to store, whereas they might be storing and gluing at the same time.

Now, friend D., if you want us to believe that the bees hold back from storing till the cracks are filled, please give us some proof other than that it would be a good thing for them. Give us at least one proof that not only ought they to do it, but that they *do* do it. In the mean time I'll go a little further than I did, and give a distinct proof that in at least one case bees did *not* wait to calk before beginning to store. Last summer, colony No. 2 began storing in a super of extracting-combs when there was over their heads a crack 12 in. by ½ in., and they filled the super without filling the crack. Now you cite a case where they did the gluing before beginning the storing.

Marengo, Ill.

[Neither Mr. Doolittle nor Dr. Miller has seen the other's article, so in the first round they neither "lock horns" nor "hit between the eyes," exactly. What they would do in the *next* round if given a chance, I can't say; but so far they have very clearly set forth each other's position so that but little more needs to be said. Some will follow the Manum plan and others the two-starter plan.—Ed.]

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

HOW TO SECURE WORKER COMB.

Question.—As I have quite a quantity of combs which are only partly built to fill the frames, which I wish the bees to complete next summer, having as little drone comb in them as possible, I wish you would explain a little further in regard to how you work for the building of worker comb, as given on page 891 of Gleanings for 1896. You say there, "And by taking them (the combs) out in such a way as to keep the bees desiring only worker brood," etc. What I wish is to understand just how this is done.

Answer.—When any colony is so weak that it has no desire to swarm (during or preceding the swarming season or honey-flow), such a colony will invariably build worker comb (so that worker brood may be reared till the colony comes into a prosperous condition), providing they do not have sufficient comb already built. Taking advantage of this fact I use all colonies which are too weak to store honey to advantage, at the beginning of the honey-flow, treating them thus: Their combs are generally all taken from them; but sometimes I leave one comb partially filled with brood, and always one of honey, giving the combs of brood to other colonies so that they will be still stronger for the honey-harvest. I now put in one, two, and sometimes three frames with starters in them, or frames which are partly filled with comb (as our questioner says his are), just according to the size of the little colony, after I have taken their combs away. In all cases I see that each one has a frame well filled with honey; for should storms or cloudy, windy weather come on at this time they would build no comb of any amount, and might starve; while with the frame of honey they will go right on converting that honey into comb, storm or no storm. If the right number of frames are given to suit the size of the little colony they will fill them quickly, especially when honey is coming in from the fields, and each comb will be filled with brood as fast as built. If not too strong they will generally build comb of the worker size of cell till the brood begins to hatch from the eggs first laid in the newly built combs by the queen; but as soon as many bees hatch they will change to the drone size of cells; or if the little colony is quite strong in bees they may change the size of cells sooner than this. Hence as soon as the first frames I gave them are filled with comb I look to see about how many bees they have; and if they are still well stocked with bees, or are in a shape where I may expect that they may change the size of cell before they reach the bottoms of the frames with worker comb (should I spread those apart which they already have and insert other empty or partially filled frames), I take out the combs they have already built, and thus put them in the same condition they were when I first started. But they will not build combs quite as freely this time as they did before, unless there can be some young bees hatching; so, if I can conveniently, I give them a comb containing mostly honey and a little brood (if they have such a comb it is left with them, which is more often the case than otherwise) from some other colony, when they are ready to work the same as before. In this way a colony can be kept building worker comb all summer, or till the bees are nearly used up from old age, the colony becoming so small as to be unable to build comb to any advantage, under any circumstances. But if just the right amount of brood is left, or given them, so that they stay in about the same condition, they will build worker comb all summer by the apiarist supplying honey or feed when none is coming from the fields. If not so strong but that I think they will still continue to build worker comb, instead of taking the brood away I spread the frames of combs (now built) apart, and insert one or more empty frames between, when these will generally be filled with worker comb before enough young bees hatch for them to change the size of cell. But *this* is always to be kept in mind, whenever you find them building drone comb: The combs they then have, all except the one mostly filled with honey, are to be taken away so that they may feel their need of worker brood again, when they will build cells of the worker size once more. I have had hundreds of frames built full of worker comb in this way, hundreds completed, as our questioner proposes to do, and hundreds "patched," where I had cut out small pieces of drone comb, which had gotten in in one way or another. If any one wishes a mutilated comb to be fixed so it will be a surprise to him just give it to one of these little colonies and see what nice work they can do at "patching" with *all* worker comb.

AN EXPLANATION WANTED.

Question.—On page 17, Jan. 1, you speak of the merits of a tall section over a square one; and one of these is, that "they bring from two to three cents per pound more in market." Am I to understand that the "pleasing appearance" of these taller sections causes people to pay that much more for honey in such sections than they would for honey in the square form of section?

Answer.—Well, no, not just that, although I think a pleasing appearance often decides the difference in price of from one to three cents a pound on section honey. If you will turn again to page 17 you will see that I did not say that a section 3⅛x5⅜x1⅝ would sell for two to three cents more per pound than would the 4¼x4¼ section; but that "why I prefer them to the *larger* size is that they bring from two to three cents per pound more in the market." What was the larger size spoken of, in that connection? The second line at the beginning of the paragraph will tell the reader. That says "sections varying in size from half a pound to two pounds." This makes it plain that I was not comparing the sections I now use with the 4¼x4¼, or square section, when I spoke of the price. Now I wish to say that I was opposed to the change from the "prize" or two-pound section to the one-pound or 4¼x4¼ section, and have always claimed that, had bee-keepers held steadily to the prize section, no consumer would ever have demanded any other, and the price for those sections would not have been lower to-day than it now is for pound sections. Bee-keepers made themselves nearly double the work as regards setting up, putting in foundation, scraping off propolis, and handling sections for a given number of pounds, when they pushed the 4¼x4¼ sections to the exclusion of the prize section; and the only reason which I could ever see for this was a desire to compete with one another. But, no matter how it came, it was done. I held on to the prize section as long as it sold in market for as much as the 4¼x4¼ did, less from one to one and one-half cents per pound, for I considered that, taking all things into consideration, the prize section paid as well as the other till a lower price than 1½ cts. per pound was reached. After that was reached I changed to the pound section, as given on page 17; and because a difference of two to three cents *was* reached, that became the reason of my changing, and for my preference for the pound section. As the prize section was a tall section, I still adhered to the tall form when I came to use a pound section.

Heads of Grain, from Different Fields

THOSE HONEY-CARAMELS IN GLEANINGS, PAGE 899.

I made a sample lot of honey-caramels, as you described in GLEANINGS, but I put in granulated sugar instead of the glucose, seasoned with wintergreen. A party here this evening was so taken with it that he is going to get me to make him 100 pounds, and put on a label telling exactly what they are made of. I believe if all bee-keepers take hold of those recipes Dr. Miller is getting up it will, if well worked, be of great value to bee-keepers in general as well as a good pure food. DOUGLAS D. HAMMOND.

Malone, Ia., Jan. 6.

TALL SECTIONS; LAYING THEM ON THE SIDE IN THE SUPER PREFERRED.

I am at a loss to understand why Mr. Doolittle would place oblong sections on end. Of course, you can place more in one super, but we think this a disadvantage for several reasons. One is, we often put these shallow supers on colonies at the beginning of the honey-flow; also on swarms that would object to a larger and deeper super. Again, our experience is that the bees will finish these oblong sections sooner, and, either from retaining the warmth or from their preference for beginning work close to the brood-frames, or both, the bees certainly begin work more readily on these shallow sections. It is an easy matter to examine these shallow sections without removing from super, and they can be readily tiered up to suit the requirements of any colony. We bought our first oblong sections of A. I. Root in Feb., 1893. They were 3¼ inches high and 5¾ long. They overweighed. Since then we had several thousand made 3⅛x5¾, 7 per foot; 21 of these sections cover the same space, about, that 28 of the 4¼x4¼ do. Our grocers prefer them. They make a handy package; and by placing a few of these sections of honey on the counter or in the window tiered up like brick, your lover of honey will hardly pass them without buying.

I wish to say that many of our bee-keepers could dispose of several thousand pounds of their comb honey at towns within driving distance, greatly to their and their brother bee-keepers' advantage. You do not need expensive cases to show in; have your sections and crates clean. Do not leave the grocer too much at one time. Tell them it is pure, from your own bees; and that when the honey is sold they can pay a certain price for it.

T. S. COMSTOCK.

North Manchester, Ind., Jan. 26.

HOW TO FIGURE INCOME ON 300 COLONIES IN WISCONSIN.

There is one question upon which I should like the expert opinion of some member of your firm; viz.: What would be a fair or medium income from 300 colonies of hybrid and full Italian bees per year if managed by a man of long experience and very considerable skill in bee culture, allowing a reasonable sum for employing competent assistants as need, and provided the bees are in a very fair honey country, and so divided that not more than 75 colonies will forage from the same territory?

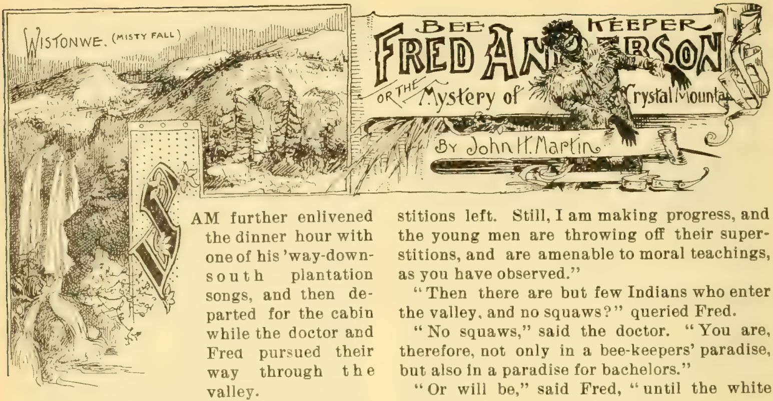
Winneconne, Wis., Jan. 7. G. R. FRYE.

[This is a very hard question to answer, as so much depends upon conditions, such as the apiarist and the locality. Wisconsin is one of the greatest honey-producing States in the Union; but I doubt not that there are localities in that State that are practically good for nothing, even though not very remote from other localities where plenty of honey is produced. A difference of only ten miles makes all the difference in the world.

In the first place, every thing depends upon the locality and the season. Assuming, then, that the man who is to operate the yards is one of long experience, the locality might yield, on an average, about 40 lbs. of comb and extracted honey. Some years the amount will be about 10 lbs., and others perhaps 75. During the last five years the average would perhaps be nearer 25 than 40. This is speaking generally of the State. Three hundred colonies, with an average of 40 lbs. each, would produce 12,000 lbs. of honey. Suppose that this honey averages 8 cts.; that would mean $960. If the average proved to be 25 lbs. (which would be safer to figure), the gross amount would be $675. Before you could get at the amount of your own labor you might have to figure on at least two months of time for a helper—it is possible you might manage without one; then there would be interest on the valuation of 300 hives and appliances, a certain amount for hauling the bees back and forth, carrying of sections, supplies, etc., from one apiary to another, and your own trips to and from each yard. As you could figure better the cost of these items, you could arrive at about the amount you ought to expect under fair conditions.

You will need to figure also that there will be some years when, perhaps, your averages will be only about 10 lbs. per colony, and occasionally a year when you will get absolutely nothing. Perhaps there will come a year when the balance will be clean the other way—when you will have to feed perhaps 10 or 15 lbs. of syrup per colony.

I have put the average price of honey at 8 cts. If you produce an equal amount of each, this will be figuring 10 cts. for the comb and 6 cts. for the extracted, both first quality. Perhaps some bee-keeper from your State can give us a set of figures that will give us an idea of the expenses we need to figure in; but from this standpoint I can hardly give you any thing more definite than the above.—ED.]



SAM further enlivened the dinner hour with one of his 'way-down-south plantation songs, and then departed for the cabin while the doctor and Fred pursued their way through the valley.

"I think," said the doctor, "that I will not show you my apiary until we return from the sulphur springs. I will show you the field first, and its possibilities, and the apiary last."

"Suit yourself as to that," replied Fred; "every thing is interesting so far. I take it that the apiary is on the terrace above us, from the way bees fly over; and then I thought I caught a glimpse of it from that lofty observatory. They followed down the stream;" and Fred, addressing the doctor, said, "I supposed you had quite a number of Indians in here; but I have seen none thus far."

"There are only a few that come in here," replied the doctor, "and then only upon some religious rite, or when I need extra help. This is a sacred valley to them, and they have about as strange a tradition as Sam has related about Ham's change of hue. I have related to you some of their traditions; but the one that has much to do with their rites in this valley is that their tribe sprang from a gopher snake. A white squaw in splendid white raiment changed the snake into an Indian, and at the same time changed a rattlesnake into a squaw. Now, according to their tradition this same white squaw will reappear and change them back into snakes, and confine them ever after in this valley."

"But, doctor, the bees having usurped the place of the snake I should think you could work them out of that absurd idea."

"I am working to that end," replied the doctor, "but as yet nothing has usurped the rattlesnake; and standing as it does for the squaw I much doubt if any thing ever will, for you must know of the contrariety of squaws generally; furthermore, my young friend, little do you understand the vagaries of human nature. It has taken Christendom ages to throw off rank superstitions, and still after these hundreds of years I fear there are too many superstitions left. Still, I am making progress, and the young men are throwing off their superstitions, and are amenable to moral teachings, as you have observed."

"Then there are but few Indians who enter the valley, and no squaws?" queried Fred.

"No squaws," said the doctor. "You are, therefore, not only in a bee-keepers' paradise, but also in a paradise for bachelors."

"Or will be," said Fred, "until the white squaw arrives and overturns things."

"Yes," growled the doctor, "that is just what always happens when the squaws arrive. But, Fred, we have something more profitable to talk about than traditions and squaws, and I am very glad to have you here to talk with. For the past eight years I have had but little communication with my kind and the outside world, and it is a new phase of my life to have a kindred soul here with me to commune with. But to leave our reflections, and to get down to practical things, we are in the center of the valley, and here are the hot sulphur springs."

"Do you know, doctor, this is a great curiosity to me? I have read much of such phenomenal things in this country, and these are the first hot springs I have had the pleasure of seeing—many of them," said Fred, in admiration, "and all along the base and sides of this cliff, steaming hot too."

"Yes, boiling hot," said the doctor, "and I wish to show you my improvement. When I came into the valley, and until recently, the cold water from the upper end of the valley and this copious stream of hot water united at this point, and flowed to the outlet together. But now you observe that I run the cold water into that ditch over there. Now let me demonstrate to you the reason why. You observe that the old channel is full of that obsidian formation that surrounds the valley. This boiling-hot water running over that formation raises it to a high temperature, as you will readily feel if you try to pick up one of those stones."

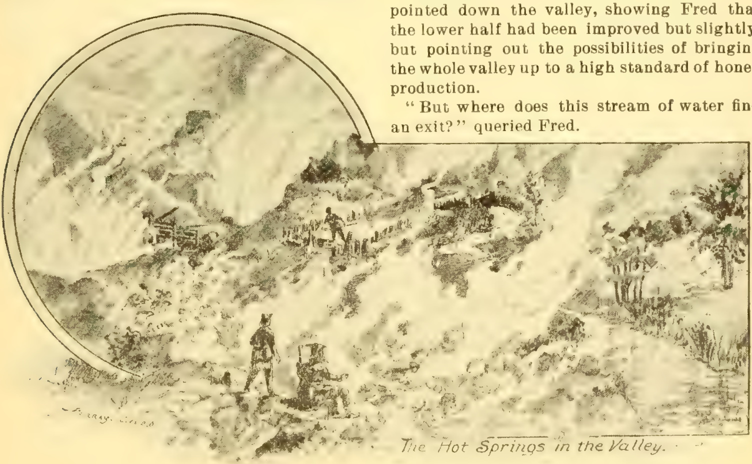
"Jerusha!" said Fred, as he attempted to hold a piece of the hot obsidian in his hand, but quickly threw it down, and, blowing his fingers, exclaimed, "That *is* hot."

"With these simple flumes I can turn the hot water into the cold-water channel. Now, when I turn the cold water upon those hot stones, see what an amount of steam arises; and if we stand here long enough there will be a line of vapor clear to the outlet. When the steam ceases to rise I turn off the cold water, and the hot water on, and heat the stones again, and *vice versa*, as long as I please."

"I plainly see how it works," said Fred; "it is very interesting; but does it pay to sit here and do that for fun all day?"

"Fun!" said the doctor, with a tinge of impatience in the tone. Then he laughed, and said, "Well, that certainly does look like a funny operation, for the sun soon dispels the steam. But let me tell you, my friend, when the atmosphere is just right, and I do this in the evening, I can fill this whole valley with a heavy fog. Now do you see any utility in that?"

"I see," said Fred; "for in the morning, after a heavy fog, the bees do a roustabout business; for, generally, fogs have an effect upon the more rapid secretion of nectar."



The Hot Springs in the Valley.

"Precisely so," said the doctor, "and especially hot fogs such as we have in this valley. Now, what do you consider the very best atmospheric conditions for the secretion of nectar in the blossom?"

"I can speak only from my eastern experience," replied Fred; "and I find that, away down in Maine, a hot July day, wherein we have several short sharp thunder-showers, the flowers seem to overrun with nectar, and the bees do a roaring business."

"And why?" asked the doctor.

"I really don't know," replied Fred; "but I have had a sort of vague idea that the thunder sort o' jolted the honey out of the tree or plant into the blossom."

"In that case then," said the doctor, laughing, "you might provide yourself with mallets, and go out on a tour of jarring the trees. But really the lightning is the factor. Every flash liberates quantities of ozone; and where ozone is abundant, there is a plentiful secretion of honey. I am now studying upon a plan by which, in connection with the fog, I can ozonize this whole valley. If I succeed we can astonish the natives with our honey-yields."

"Well, that would be a wonderful thing, doctor, to astonish these natives who are so stoical about every thing. But, really, your plans are too deep for me. I am not educated on the scientific side of bee culture."

"Of all places in the world, in this valley is just the place to learn the highest science in bee culture."

Stepping up a little rise of ground the doctor pointed down the valley, showing Fred that the lower half had been improved but slightly, but pointing out the possibilities of bringing the whole valley up to a high standard of honey production.

"But where does this stream of water find an exit?" queried Fred.

"Oh! it plunges into a jagged cave at the extreme end," replied the doctor. "We will now return and visit the apiary. It is well up on the third terrace, and we will follow this zigzag trail to the upper terrace, where we find a fine view of the valley."

As they climbed, the doctor called attention to the charming little waterfall near the entrance. The Indian name was *Wis-ton-we*, or Misty Fall.

"When we go up there again you must examine my scientific home-made elevator, a rawhide rope, a large rawhide water-bucket, and other original fixtures. But here we are. This gives a better view of the whole valley than we get from any other point."

The Wis-ton-we, after a plunge of 50 feet, collected itself into a little stream that, from their point of view, looked like a silver cord winding in and through the shadows of trees and shrubs. Now and then could be seen oval ponds glistening in the sun like beads upon the cord; clusters of live-oaks snuggling close together like consulting friends; tall prim gum-trees in regular order like sentinels upon the outposts; willows, their long pendent branches toying in the pools; climbing roses and flowering vines hiding rocks, or pendent from the cliffs, their many-hued blossoms lighting up each crag with a glory of color, and filling the air with fragrance; and the effect of all was simply enchanting.

"Doctor, I am charmed," said Fred, with enthusiasm, as he looked down upon the beauty below and around them. "I never thought that a place on earth could be made so beautiful."

"Neither could it," replied the doctor, "except in this glorious California."

"But, doctor," said Fred, with an eye to practical results, "if you would throw this valley open to the public it would bring you a revenue equal to a gold-mine."

"Gold! gold!" said the doctor, with much feeling; "is there no place on this broad earth where man may seek a home, and rest from the gnawing, sordid greed for gold? Is there nothing higher, nobler, in this life than to grasp, grasp, and hoard a paltry bauble that for a day brings pleasure, and for eternity leaves a sting? Gold! that cause of ceaseless strife wrecks nations, divides our race, rends families, debauches the church—away with it! let this valley, with its crystal water and untainted air, be free from it; and, though we eat but a crust, let it be with contentment, and great gain to body and soul. But I do not blame you, Fred, for looking upon the money value of this valley. You are young, and come of a thrifty race of people who have carved out meager fortunes on the sterile hills of the far East, and to you this probably looks like a waste of opportunity; but when the gray hairs peep in profusion from under your hat-brim you will or should have a different view of such things."

"Well, doctor, this is your paradise, and you seem to have entire control of it, and I know it would mar its peace and quiet, and perhaps prevent many of your experiments if the public were allowed to enter; and, though I know the evils of the worship of gold are many, I also know that gold properly used brings with it countless blessings, and I am sure you could use it as such. But even if you do not let the public in, when I look over the valley I sadly miss two very important elements—so important that the beauty is marred without them."

"Now, Fred, I am curious to know what your two elements are. To me this valley is near perfection. If gold will plant your lacking elements, it will be forthcoming."

"Yes, you have it, doctor, near perfection; and to add the last touches needs neither silver nor gold, but love. It lacks lovely woman and romping children. In my far eastern home I have a loving mother; and, aside from the home loves, the neighboring children were my best friends. Doctor, let me sing you my love-song;" and for the first time in many weeks Fred sang:

I love it, I love it, the laugh of a child,
Now rippling and gentle, now merry and wild;
Ringing out on the air, with innocent glee,
The merriest sound in the world for me.
Oh! the laugh of a child, so wild and so free,
Is the merriest sound in the world for me.

Memories that had lain dormant in the doctor's breast for years were touched. He brushed a tear from his eye, but bruskly remarked, "Fred, you are too sentimental. For a change of subject let us look at our apiary;" and he led the way down the terrace.

Fred Anderson, the enthusiastic bee-keeper, now forgot his other surroundings, and began to speculate upon the wonderful apiary he should see. The doctor had exploited the wonders of the valley for honey production so highly and learnedly, of course the apiary would be upon the same scale. They descended to a little amphitheater that sat back from the terrace proper, and covering, perhaps, and acre of space—an ideal location for an apiary. On the far side of it, against an odorous bank of heliotropes, were ranged ten colonies of bees in rough hives made of old gasoline-cases.

"For heaven's sake, doctor," exclaimed Fred in astonishment, and a tinge of anger in the tone, "those are not all the bees you have in the valley?"

"That is certainly all," said the doctor; "but, even were there fewer, Fred Anderson, what are you going to do about it?"

By
ER
Root
Editorial

WARNINGS TO BEE-KEEPERS, IN BEE-SUPPLY CATALOGS.

Although the bee-journals have cautioned their readers over and over again not to ship their honey to new and untried firms, it is evident that many bee-keepers, notwithstanding, are doing it right along, and are suffering the consequences. The probabilities are that they do not take *any* bee-journal. Perhaps they think they can not afford it. After they have lost several hundred dollars through an irresponsible or dishonest commission house, *perhaps* they will begin to think they *can* afford it. Only $1.00 a year invested in a bee-journal will save several times that amount in valuable kinks learned during the year, and will enable them to fight shy of the rascals engaged in the business of selling honey.

Realizing that the patronage of the journals is comparatively small, we have this year put a paragraph in our catalog, that reaches a circulation of 150,000 a year, warning our patrons to beware of new and untried commission houses. Usually, firms promising to do extraordinarily big things are the very essence of rascality, and the more aggravating because they are sharp enough to evade the law. Well, it would not be a bad idea if dealers and manufacturers would advise their patrons in a similar way in their catalogs. Let us leave no stone unturned to post bee-keepers on the ways of these "snide" concerns.

THE NEW HONEY-LEAFLET BY DR. MILLER.

OUR honey-leaflets are now out, and are entitled, "Food Value of Honey." The subject-matter was prepared by Dr. C. C. Miller. I gave him the general outlines of what I wanted, and told him to work the subject over thoroughly, in a way to interest *consumers;* and this he has done in a most admirable manner. The following headings appear through the leaflet: Honey as a wholesome Food; Honey the most delicious Sauce; It is economy to use Honey; Give Children Honey; Honey the best sweetening for hot Drinks; Comb and Extracted Honey; Different Kinds and Flavors of Honey; Adulteration of Honey; Care of Honey; The various uses of Honey; Honey-cooking Recipes. These last have been carefully tested in the homes of bee-keepers. Some of the recipes heretofore published make "messes" that are simply vile. The doctor has carefully selected only those that are good, many of them having been tested in his own family. Among these is the recipe for the celebrated honey-jumbles. The others comprised various recipes for making honey-cakes, honey-gems, honey cough-cure, summer honey-drinks, etc.

Taking it all in all, I believe this leaflet is the most comprehensive and most complete of any thing that has ever been gotten out; and it will do a world of good in stimulating trade in pure honey, providing bee-keepers make an effort to place it among their customers. In fact, we are preparing to distribute it all over our town of 2000 inhabitants.

We put the price so low—just high enough to barely cover cost—so there will be no reason why bee-keepers can not scatter it far and wide. Price: 10 for 5 cts.; 100, 20 cts.; 250, 40 cts.; 500, 75 cts., all postpaid; lots of 1000, 75 cts., postage or express *extra*. The leaflet contains something like 3000 words. It is printed in bold, clear-faced type, leaded brevier, like our A B C book, and the matter occupies four pages the size of this. When desired to inclose it in a letter, all that is necessary is to fold it twice as you would a letter.

I will further make the suggestion that every honey-producer in the country, every time he writes to his customers, inclose one of these leaflets. The price is so extremely low that he can well afford to do it. If the demand shall prove to be great enough, we shall be able to reduce the price still further. As it is, we expect an enormously large demand or else we could not make these prices, for we do not care to make any direct profit on the leaflet.

HONOR TO WHOM HONOR IS DUE, AND CREDIT TO WHOM CREDIT IS DUE; WHO FIRST USED STAPLES UNDER THE PROJECTION OF TOP-BARS, AS END-SPACERS?

SINCE our last issue, describing the improvements on Hoffman frames, as given on page 94, we have received scores of indorsements and orders. I do not know of any thing we ever introduced that seemed to have been so instantly accepted as a move in the right direction as the end-spacer to the Hoffman frame. Among those who consider the improvement of great value are two or three who used the idea long before we did. Mr. F. Boomhower, of Gallupville, N. Y., a bee-keeper who has figured more or less prominently in the bee-journals for perhaps a score of years, says he has used end-spacers for years, as we have described them, including the wooden gauge and all. In proof of this he furnishes one of his catalogs, issued in 1893. In this he sets forth the great desirability of the improvement. A few quotations will suffice to show how much he valued the idea. He says: "Any one can, for about 2 cts. per hive, add this improvement to his frames which he may already have in use, without changing or getting new ones;" that they "add much to the enjoyment of the operator, and make rapid manipulation a pleasure. . . Any frame or frames can be instantly removed, and at all times, without the use of any knife or pry to remove them, as is the case with the Hoffman or any closed-end frame. There being a bee-space between the end of top-bar of frame and shoulder of rabbet, in end of hive, there is no possible chance for the bees to apply or deposit any propolis; and any or part or all of the frames can be instantly shoved across from one side to the other. . . This arrangement alone is a valuable one, and merits the attention of every progressive bee-keeper."

The frame that Mr. Boomhower describes, as will appear from the disparaging reference to the Hoffman, as above given, was *not* exactly such a frame as we illustrated in GLEANINGS. I have before me one of his hives and a set of the frames. The top-bar is a bee-space short at each end, and a nail driven in diagonally through the top into the end-bar. These end-bars are narrow, and staples are used as *side*-spacers.

However, Mr. A. G. Willows, of St. Catharines, Ont., says he used exactly such a frame as was described on page 94 in last issue, in the summer of 1893, and that he wrote to us at that time (we had forgotten it) calling our attention to them, but that we replied that we could not see our way clear to change the length of the top-bar, or something to that effect.

Both Mr. Boomhower and Mr. Willows very properly felt that they ought to have the credit for being prior in the use of a bee-space around the top-bars in connection with a staple end-spacer. Both seem to be entirely ignorant of what the other has done.

Now, if the reader will turn to my article on page 94 of our last issue he will see that I did not claim the idea was *new*. I simply carried the impression, which was true, that the improvement was something new to our *catalog*. In other words, we introduced the improvement as a new one to our customers, just as we introduced the Hoffman frame in 1890—a device that had been used for 15 years or more prior to our adoption of it. As I shall presently show, neither Mr. Boomhower nor Mr. Willows is prior in the use of the bee-space around the top-bar in connection with staples. A. I. R. says Langstroth was the first one to make and use it; that he bought frames of this description of Ransom & Cobb, of Cleveland—a firm who made the Langstroth hives away back in 1864 and '5. In proof that Mr. Langstroth did use this very thing, the reader is referred to "Langstroth on the Honey-bee," *1857*. Plates 1, 16, and 22 show the bee-space around the ends of the top-bars. It is true, the staples are not shown; but A. I. R. says they are mentioned and their use discussed in the old volumes of the *American Bee Journal*, and were used by him and quite a number of other bee-keepers who were then following Langstroth.

1857! Well, well! How many times we think we have invented something, only to find that Langstroth was ahead of us by about thirty years!

But I do not care how old an idea is. If it is a good one, use it; and if not, throw it away.

Unless Mr. Boomhower used staples under the projections of the *Hoffman* frames pure and simple, Mr. Willows will have to have, for the present, at least, the credit of being prior to any in the use of staple end-spacers when applied to *Hoffman* frames. With regard to staples or nails as side-spacers, E. France & Son used them a great many years ago—just how long I can not say. The idea is certainly very old. I find in GLEANINGS for 1890, page 99, and 1891, page 474, spacers of this description. In the *American Bee Journal* for 1871, page 252, will found that Henry Alley used staples as side-spacers. Again, in the same journal it seems that Mr. Thomas used side-spacers to Langstroth frames. A reference to it is given on page 203 for 1870. British bee-keepers have for years used a bee-space around the ends of the top-bars, in connection with a shoulder or end-spacer, to butt up against the hive-rabbet under the top-bar. See Cheshire and the files of the *British Bee Journal*. A single reference from this journal will suffice; viz., Jan. 1, 1876, page 169. Again, Mr. A. B. Weed (brother of the foundation man) used short top-bar projections with nails under them some 15 years ago.

In justice to Mr. Boomhower, perhaps it would be fair to state that he may have been, and probably was, the first to make use of staples as *both* side and end spacers. His arrangement will make a very excellent self-spacing frame, and I will illustrate it in an early issue of GLEANINGS. But taking it all in all, I should prefer the Hoffman as illustrated in our last issue, for the reason that I *want* the wide part of the end to help conserve the heat, and also because the sticking together of these contiguous parts of the frame is a decided advantage rather than a disadvantage. I *want* the frames to stick together some. It is much easier to handle them thus in pairs and trios than to try to hold them together by mere friction; and then in carrying the hives about, this slight sticking prevents the frames from slipping about. Still, there may be some who would prefer the Boomhower plan. All that would be necessary would be a few extra staples applied to our regular thick-top frames having end-bars ⅞ wide. We can furnish hives for this combination at the same price as our regular ones; but the hives will have to be ordered from the factory rather than from any of our branches or agencies, as we shall not regularly keep them in stock.

FOUNDATION WITH DEEP CELLS; MR. HUTCHINSON'S "NOTE OF WARNING."

COMMENTING on what was said on this subject, both in the *American Bee Journal* and in GLEANINGS, Mr. Hutchinson, in the February *Review*, feels "that a most earnest warning ought to be given regarding the use of such foundation." Well, perhaps I had better give all he says, and here it is:

> We all know that the eating quality of comb honey has not been *improved* by the use of comb foundation—much has been the complaint about the "fish-bone" in comb honey. Comb, natural comb, is of a light friable nature—like the feathery, new-fallen snow. Once this snow has been *melted* it can never be restored to its former state. It may be frozen again, but it will be hard and solid; it will be ice. Of course, Nature can evaporate the water, and form it into snow again, but man can not restore it to snow. In a like manner, once comb has been melted into wax its character is changed. It is no longer comb, but *wax*. Another simile has been used by Mr. Bingham; viz., that "butter is butter, but melted butter is grease; so comb is comb, but melted comb is *wax*." Comb foundation

> of the lighest, most fragile type is bad enough; foundation walls one-half inch deep will be an *abomination.* Unless I am greatly mistaken it will be as great a blow to the sale of comb honey as has adulteration to the extracted-honey market. At least, let us try this thing most *cautiously.* I fear, too, that unscrupulous men would use this product even if it did injure comb honey. Let us be careful what we do in this line.
>
> I would not assert that artificial comb could not be made having walls as thin as those of natural comb, but they would still be of *wax;* and comb honey having such a product as its base would be little else than honey "done up" in tough, leathery, "gobby" wax—not comb honey with its delicious, fragile, toothsome, flaky comb.

I believe that Mr. Hutchinson is thoroughly honest in his convictions on this matter. In fact, I once thought as he does; but Mr. Weed knocked my theories into smithereens by hard *facts* in the apiary.

He had been experimenting and testing this new product for *nearly two years* before we said any thing about it in print. He has put it on our hives, and had the bees draw it out—in fact, tried it under all sorts of conditions. The proof of the pudding is in the eating; and the results in our apiary so far seem to show that Mr. Hutchinson's fears are groundless. The *comb* from the new product is *not* tough and leathery at all. After a long series of experiments* we have about come to the conclusion that, in the use of foundation, the bees do not utilize or in any way make use of the wax in the *base* or *septum;* but they will utilize all the wax in the *side walls* to the depth of $\frac{3}{8}$ inch. Ordinary roller-mill foundation has a surplus of wax in the wrong place. We are aiming in the new product to put it in the *right place.* With this end in view, Mr. Weed has been experimenting along the line of making deep-cell foundation, the bases of which are just as thin as the natural; and the walls, instead of $\frac{3}{1000}$ inch thick, as in the natural, are $\frac{8}{1000}$. Careful measurements last year showed that the bees reduced this $\frac{8}{1000}$ down to about $\frac{3}{1000}$. The surplus wax was simply used to build up the depth of the cells.

I grant that there is fishbone to some extent, resulting from the use of comb foundation; but the reason of this is that at present there is more wax in the bases than there needs to be; and the wax in the side walls is in such shape that the bees do not utilize all of it. The result is that a midrib is left in the center of the comb, thicker than will be found in combs built wholly by the bees. In the new product we propose to put this wax where it will not be detected in the eating. The very snag, then, that Mr. Hutchinson is afraid we shall run into is the *very* one we would avoid in the new product. In other words, it is not proposed to use more wax than we now use in thin foundation; but we do aim to put that wax in such shape that bees will utilize it in such a way as to leave no midrib or fishbone in comb honey.

Mr. Hutchinson need have no fears that we shall rush on the market the new deep-cell foundation in any quantity this season. At present we have only one small machine, and turn out pieces about 4x5 inches. We are working on another machine to make samples perhaps 5x8 inches. The machinery and dies necessary for the purpose are very expensive, and, even with the larger machines, the output will be very limited. If bee-keepers are holding back their orders for foundation, expecting the new product *in quantity* this season, they will be disappointed. They had better make their requirements, irrespective of the new article, and in the mean time we will try to furnish a super or two of the new deep-cell foundation to those who wish to try it.

After reading the above, Mr. Weed added:

> It seems to me that Mr. Hutchinson ought to have put his "Earnest Warning" at the head of Mr. Baldridge's article in the *same issue.* Mr B. "prefers light brood to thin foundation for drawn combs," or, in other words, proposes to use much more wax than I do. Would not Mr. Baldridge's "abomination" be still more of a temptation to "unscrupulous men"?

APICULTURAL INVENTIONS AND THEIR DEVELOPMENT.

At the Michigan State Bee-keepers' convention, reported in the *American Bee Journal,* Mr. T. F. Bingham, of smoker fame, in his paper on principles in apiculture, closes up thus:

> In counting up the inventions pertaining to bee-keeping, which have been long tested, weighed in the balance and not found wanting—inventions which no one has been able to improve or improve upon—I find no other State has made so many valuable inventions since the invention of the hanging movable-comb frame by the Rev. L. L. Langstroth, as has Michigan.

This may or may not be true; but one thing I believe is true—that Ohio has done more to develop and put into practical use inventions and improvements in apiculture than any other State in the Union. Before our Mr. A. I. Root began the sale of supplies, very little had been done in the way of developing inventions of merit. I do not think it is egotistical to say that he *pushed into* public favor the honey-extractor, comb foundation, section honey-boxes, and did, perhaps, more than any other man to make Langstroth dimensions standard. In later times we have popularized self-spacing frames; improved the construction of hive-corners and hive-covers; bettered the quality of foundation; and now we are introducing the new drawn or deep cell-wall foundation.

AMALGAMATION DEFEATED.

Just as we go to press, the certified report of the judges of election for the National Bee-keepers Union has come to hand, showing that amalgamation is defeated two to one, and all the old officers reëlected, including General Manager Newman. In view of the reasons stated on page 60, the result is no surprise. Gleanings bows to the will of the majority. No room to squeeze in more this time.

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*Mr. Taylor's observations as given in the *Review* are quite in line with our own experience.

OUR HOMES.

He that soweth to his flesh shall of the flesh reap corruption; but he that soweth to the Spirit shall of the Spirit reap life everlasting.—GAL. 6:8.

Camp Verde is about thirty miles from Jerome, and about fifty miles from Flagstaff. These are the nearest cities or towns of any account. Camp Verde itself used to be a military station with a fort or camp as a protection from hostile tribes of Indians. The Indians, however, have long since ceased hostilities, and the camp is broken up. All that remains is the long low adobe buildings, a single store, and one or two dwellings. It was Saturday night when I got into the Verde River. During the evening some of the neighbors dropped in, and finally a young minister who was to preach to us on the morrow. He was a bright, vivacious, muscular young Irishman, or at least he came from Ireland. During his early life, he, in the language of our text, did considerable in the way of sowing to the flesh. Through the grace of God he was converted, however, and is now giving all his strength, life, and zeal toward sowing to the Spirit. I shall long remember that pleasant evening at friend Bell's. We kept the minister talking, and answering questions until he would have been tired out had it not been for his Irish muscle and the grace of God that seemed to make him untiring in his work. He preaches at three and perhaps four different stations, scattered a good many miles apart. Most of his appointments are every other Sunday; some of them only every third Sunday, and, if I remember correctly, at some points they have preaching only once a month. At most of these country places, however, they have Sunday-schools and Endeavor meetings every Sunday. I believe these are both generally well attended. But there is a general complaint of poverty all over this locality. The minister is paid partly by the church that sends him out, and he is expected to get a part of it from the people where he preaches. Mr. Bell informed me, however, that they were very much behind in raising their small proportion. Rev. Mr. Healy has never lost courage and zeal, however, even if his people are a little behind in paying his salary. He is one of the most untiring and indefatigable Christian workers I ever knew.

After giving us an excellent sermon at the schoolhouse he hastened off to another appointment several miles up the river. He preached and exhorted there as usual; and as we were coming home from the Endeavor meeting in the evening we passed a little home where I happened to know there was quite a family of children. I stopped a moment to listen to the very earnest talking from some one inside, and looked inquiringly at Mr. Bell.

"Oh!" replied he, "that is only our minister. As soon as he gets through preaching he makes house-to-house visits, calling on those who do go to church and on those who do not go, all alike. In fact, he puts in pretty much all his time week days and Sundays in visiting the people of his different parishes."

There were so many of us in friend Bell's pretty little home that Saturday night that we were asked, the minister and I, if we could manage to occupy the same bed. I do not know just what I said, but I felt like saying, "To be sure, we can. So far as I am concerned, brother Healy and I can not only get along in the same bed together, but we could get along side by side through all life's journey, clasping hands as comrades in the Master's service."

Oh how much good it does me to find strong, earnest, bright young men, giving their whole lives toward battling for the right, and holding up before the world the cross of Christ!

I am now going to "tell stories out of school" just to illustrate what Christianity has to meet in these out-of-the-way places. Of course, there are boys and girls to be looked after, even if the homes are scattered more or less apart; and these boys and girls will get together and have some sort of frolic now and then. Perhaps one reason why the Endeavor Society has made such headway is because it affords the means of letting young people get out and see each other. Through brother Bell's instrumentality, together with that of his good wife, they have quite a good Sunday-school and Endeavor Society in their neighborhood. Yes, there are two or three of them — one at the old camp and one up the river near the locality where brother Bell and I had our "falling out." Well, some time last fall, I do not know but it was toward Thanksgiving time, the Endeavor Society decided to have a "husking bee." Quite likely, husking-bees had been fashionable before any Endeavor Society was started. When the Endeavorers took the husking-bee in charge, it was understood — at least by the Christian people—that it would be something in line with the Endeavor socials. I believe the husking-bee was a success. But after it was over, some of the young people, in accordance with a time-honored custom, commenced to clear away the chairs and tables, so as to wind up with a dance. The Endeavorers protested, and finally managed to wind up the husking-bee at a seasonable hour, without any dance. A certain element, however (but I am not prepared to say whether they were members of the Endeavor Society or not), were very much put out, and declared they would "pay" the Endeavorers off, and "get even" with them. Please bear in mind what I have said about the difficulty of paying the minister's salary. As a rule, the crops are poor in the Verde Valley; and not only do the people work hard for whatever they get, but all their produce must be hauled over long mountain roads from thirty to fifty miles before they can find a market. Under the circumstances it seems hard to call upon these poor hard-working people for contributions for *any* purpose. They have no money, and absolutely "*can not*" raise it. May be you have heard of such a state of affairs before. Perhaps it is talked and felt in your own community. Now just wait a bit. The opposition side to the Endeavorers declared that, even if they *were* defeated on a Thanksgiving dance, they would not be on a Christmas dance; and they made their preparations, and advertised tickets for sale at a dollar each, and then they went to work to carry out their project. By some hook or crook, the superintendent of the Sunday-school — or one of the Sunday-schools at least — was induced to help sell tickets; and, what do you think? They made their boast that they were going to sell a hundred tickets, and did sell that many. One hundred hard-earned dollars were taken from the poor people of that valley, and paid over for tickets to the dance; and then they crowed over the Christian element who thought at Thanksgiving time that spiritual things had triumphed over the enemy.

Dear friends, perhaps I have not told the story just right. It is near enough right, however, I think, to illustrate the point I wish to make. In almost any community people can scrape up money if it is wanted *badly* enough. Very likely, as a consequence the minister's salary is cut off; perhaps rents were not paid; may be the good wife and the children had to go without suitable clothing to get ready for church and Sunday-school, in consequence of the money that was raised for that dance. May be the Christian people did not take just the right course at the time of the husking-bee. It is a little dangerous to shut right square down on things of this kind in a way that is liable to bring up bitter feeling and divide the people into opposite factions. If some of the good women had plead with those who wanted to have the dance to have it at some other time, and if the dancing-party had consented, it would have been very much better.

Do some of you inquire what harm the dance would have done the Endeavorers? Perhaps I am not equal to the task of answering this matter right here, even if it were advisable to take the space to do so. I may say, however, that, where the thing has been tried, it has been shown very conclusively that the more young people are interested in dances, the less they are interested in spiritual work. The young people's prayer-meeting can not be made to harmonize with a dance. One or the other will have to go to the wall. If the boys and girls would dance only with their *brothers* and *sisters* it would be a different thing. But they will not do this. They themselves will tell you there is no "fun" in it. I once suggested to a man who was going to walk a tight rope that he should stretch the rope only six feet from the ground. The people all laughed at me. Nobody would throw any money into his hat if he walked on a rope only six feet from the ground. It must be away up above the tops of the highest buildings if possible. They would not pay their money unless he would stretch a rope so high it would be *sure death* if he should fall. Now, you may think I greatly exaggerate when I say the matter of dances is something on the same line. People would not pay a dollar to go to a dance unless they were permitted to incur danger. The danger is not so much to young men and boys as it is to young *girls*. It is the latter class who are going to be crushed to a shapeless mass of deformity if they fall.

Oh, yes! I *do* know that boys and girls who refuse to dance or to play cards are, in many places, ostracised, as it were, from the rest of the young people. I do know of the hits and stabs they get when they decline. God knows I know of the crosses they have to bear in order that they may make their lives pure and clean. I have not spoken of fashionable wine-drinking; but these three seem to go together. May God help us to stem the tide. May he give grace and courage to the young people and to the young Christians who are nobly and heroically holding the fort. Oh how it rejoices my heart when I see a young man or young woman who has gone safely through the ordeal of the teens! for it is true, dear friends, that, almost without exception, a boy or girl who gets to be 20 or 25 will begin to lose the inclination for such things. Again and again have I heard such ones say, "Oh I am so glad that I held fast to the advice of my father and mother in regard to these matters! I can see it now, but I did not then." Dear young friend, you can easily test this matter of "questionable amusements" for yourself. If you are a professing Christian or a member of the Endeavor Society, suppose you try the experiment of joining in with those who take part in such amusements, and watch carefully to see what effect it has on your spirituality. After having attended the dance, can you read your Bible or kneel in prayer, or take part in the Endeavor Society, with the same zeal and enjoyment you did before? I think there can be but one decision in regard to this matter. There may be private dances in the home circle, among friends and relatives, where there is but little to be objected to; but as you acquire skill in the exercise you will be constantly called upon to mix in more or less with the great outside world. I have watched the matter for almost fifty years, and my decision is like that of your own pastor and that of almost all good Christian people. A very dear friend of mine with whom I had had frequent conversations on this matter once came to me and said her conscience prompted her, in view of the talk we had had in regard to dancing, to make me a little confession. This confession was something like this:

"Mr. Root, after every dance that I have attended I have always had a feeling next morning that I was a little lower down than I had been the day before. Nobody told me so, but it was the verdict of my own conscience. Now, you know I sometimes go to prayer-meeting, and take part; but every morning after having attended the young people's prayer-meeting, especially after having taken part, somehow I feel just the opposite. In fact, I feel as if I had been lifted up just a little. The verdict of my own conscience is that I stand a little *nearer God* and a little further away from earth and earthly things."

This was not her own language exactly, but it was the purport of it as nearly as I can remember. Now, if God's Holy Spirit gives us all this sort of witness, we do not need to go to others for advice. We do not need to inquire what *others* do in regard to these matters; but we may seek the same counsel that my young friend did. We have it in the little text at the head of my talk to-day:

> He that soweth to his flesh shall of the flesh reap corruption; but he that soweth to the Spirit shall of the Spirit reap life everlasting.

Please remember those beautiful words at the close—"shall reap life everlasting." Of course, we must bear burdens. Sometimes it seems pretty hard for the average boy or girl; but, my dear young friends, let me suggest to you that the great time of seed-sowing is while you are in the teens. About the time you are 20 or 25 you will begin to reap. Shall it be corruption or life everlasting? May God's Holy Spirit help you in the decision you make.

NOTES OF TRAVEL

BY A. I. ROOT.

CAMPING OUT GENERALLY; ITS INFLUENCE ON HEALTH, ETC.

I have often heard of the appetite and resulting health that follow camping out in the open air; but I confess I never realized it till we had been out several days. Of course, I rode my wheel a great deal; and when just a little fatigued I would throw it on the canvas covering the bedding on the back part of the wagon, and then sit on it to keep it in place. This wheel-riding would of itself give me an appetite; but the sleeping in the open air is certainly a large factor in the matter. No room, no matter how open, can give exactly the same clear pure air that you get outside with only the stars overhead. My friends had brought such a bountiful supply of blankets that I never felt the least bit cold.

In stopping for dinner or for the night, the two important things are "wood" and "water." It seems very strange to eastern folks that either should be scarce; but on the desert, water is found only at certain points, unless there has been rain recently; and wood is so scarce near these watering-places, because it has been so carefully scraped up, that we once or twice paid 25 cts. for a very small armful. While the men cared for the horses I usually built the fire and cooked the oatmeal, toasted the bread, "set the table," etc. Setting the table consisted in turning over the lid of the lunch-box and resting it on a water-pail turned upside down. Mr. Carey made the coffee, and I never drank such delicious coffee before, and never expect to again. You may ask, "How about plain hot water you have lauded so much?" Well, coffee seems specially made for camping out; and if the water is the least bit alkaline the coffee disguises the taste. I did not use sugar, but did use concentrated milk. Mr. Elvey cooked the quails and beefsteak. The most nourishing and delicious steak I ever ate we bought at Antelope, 2½ lbs. for 15 cts. The mountains of Arizona can produce beefsteak as cheaply as or cheaper than any other country in the world; and one who knows how can cook it over a camp-fire so as to be nicer than any restaurant or hotel cook ever *thought* of doing. I am not going to claim that the mountain and desert air did not have something to do with it. I gained 11 lbs. in weight during the two weeks' trip, as nearly as I can make out, and now weigh as much, perhaps, as I ever did in my life.

Just a word more about the beef and cattle. Where there is plenty of rain, cattle can be grown on the mountains, I am told, at a cost not exceeding *one dollar per head.* When these cattle are of proper age they are driven down to Salt River Valley, where they quickly become fat on the wonderful alfalfa. Imagine a field of forty acres in January, as green as a clover-field in June, and the plant almost knee-high. Stock enough is turned on to eat it down close to the ground, then they are removed to another field, water is turned on, and in a few weeks the field is green with another crop. So valuable is this alfalfa with its many crops in a season, that some fruit-ranches are being cleared to make room for alfalfa, because the latter pays better than the fruit.

Let us go back to arid plains and mountains again. During the whole of 1895, more rain fell than for many years, and feed is now so plentiful that there is not stock enough to consume it all. Previous to 1895 there were two or three years of deficient rainfall, and thousands of cattle starved, and some of the owners became bankrupt. Go where you will, the bleaching skeletons of starved cattle are found. All along the roadside they are common. A dead cow by the wayside is too common to occasion remark, and no care is taken to bury the carcass; for in this arid clime it just dries up, emitting very little or no smell at all. The bones are not collected, as they are in Texas and other places, for the reason that the cost of shipping is more than their value at present. Around "Skull Valley," bones are so plentiful as to suggest its name.

Alfalfa is made into hay in the spring and summer — seldom in winter, on account of difficulty in curing properly. It is pressed into bales of about 100 lbs. each, and these are retailed in Salt River Valley at 25 cts.; but after we were out two days in the desert (at Antelope) the price was *$1.25* per bale. You see they count it worth a dollar to haul 100 lbs. two days. I am told that small farmers who find a spring in some canyon, so as to irrigate a small field in these localities where hay is so high, get to be well to do in raising alfalfa alone. To save hauling so much weight and bulk we tried grain instead of alfalfa hay; but our horses greatly preferred the hay, and seemed to work better on it; in fact, we found it hard to get them to eat any kind of grain if they could get their favorite alfalfa hay.

MONTEZUMA'S WELL.

Within twelve or fifteen miles of Camp Verde, off toward Flagstaff, is the celebrated Montezuma's Well. I started ahead of the team, on my wheel. When I got pretty near the locality, I wanted to make some inquiries. I saw a lot of little girls playing near a schoolhouse. As it was a little off the road I turned my wheel in that direction, proposing to ride up and make inquiries. As soon as they saw that strange-looking craft making toward the group at pretty good speed, they with one accord put for the open door of the schoolhouse, with a speed equal to if not greater than what I could make on the wheel. One of the older ones, however, ventured to give me the desired information. A little later the team came near enough so that Bro. Elvey informed me that, if I would go to the top of the hill yonder, plainly in sight, I could find Montezuma's Well.

The team passed on to the place where we were to stop over night, near by. I followed the trail with my wheel until I was nearly at the top of the hill; then I proceeded to go up the rest of the way on foot. Was it the exercise of riding or the excitement of the moment in thinking that I was at last so near this celebrated freak of nature? And is it really possible that right on top of this hill here before me I am to find this far-famed *well* of Montezuma? I had almost reached the summit, and began to think there was some mistake, when, lo! at my very feet yawned a huge rocky cavern or drop. From where I stood, straight down, it was nearly a hundred feet to the water, and the well is almost circular. I believe the distance is about 200 feet across. I threw a stone with all my might, but it came a good way short of reaching the center of the pool. Sure enough, as I had been told, air-bubbles kept rising continuously where the stone went down. The report is, that ropes tied together have been let down 500 feet without striking any bottom. By leaning over the edge of the precipice I saw, perhaps a third of the way down, the cliff dwellings that those queer people of olden time built even into the sides of this well. It made me think of the swallows' nests under the eaves of a barn. It was so near night that I did not undertake to explore the dwellings. In fact, it is a dizzy piece of business any way, with that bottomless pit of water to catch you in case you should fall. On the opposite side from where I stood, the rocky wall is a little more broken. In fact, there is a trail made by the feet of many visitors where they get down. At the bottom of this trail is a little piece of ground not covered by water; and a tree and some bushes of some size grow here. Right back of the tree there is a cave, or, rather, two of them. One of these is occupied by more cliff dwellings. In fact, they go back into the rock a considerable distance. The other, the right-hand branch, leads down through many crooks and turns into a place where you may hear running water. This is the water that constantly overflows from the well, and passes off through the rocky sides of the hill until it finds an outlet in Beaver Creek; and some enterprising fruit-grower or farmer has caught the stream, and carries it away in an irrigating-canal to his ranch. The volume of water that goes out is perhaps large enough to fill a good-sized stovepipe. By looking carefully around the margin of the bottom of the well you will find a place where the waters go gurgling down through the broken rock.

Whence came this batch of curiosities? What made this well in the top of the hill? Friend Elvey explains it by calling it the crater of an extinct volcano. At some former period, he thinks, the volcano blew out this hole. The hill surrounding it is made up of the matter thrown out, and water found its way in, filling up the crater, and overflowing till it found an outlet through the side of the hill into Beaver Creek. Mr. Robert Phinney, who lives near by, has another explanation. He thinks the underlying rock is something more or less soluble in water, and that the spring of water coming up through has dissolved the rock and carried it away. As a proof of this, the water from the well even now holds a large quantity of minerals in solution. The deposit on sticks and stones, something like petrefaction, shows this. As the water is moderately warm at all seasons of the year, where it comes out into Beaver Creek on a frosty morning it sends up quite a little steam or vapor; and a beautiful growth of "maiden-hair" ferns follows the path of this warm spring water from its exit out of the cliff down to Beaver Creek.

By the time I had finished my examinations a man came galloping up to the summit of the hill, on horseback. It would surprise people here in the East to see how carelessly and recklessly people ride on horseback along the mountain canyons. The trail down the hill was so steep that I sprang from my wheel; but while we were talking, the man turned about in his saddle; and while he was looking right back toward me, his horse came to a series of rocky precipices, some of them two or three feet straight down among the jagged rocks. Right down this rocky pathway the horse went with a sort of lope, and his rider had his head turned toward me, and did not even look to see where his horse was going. I stood still in open-mouthed astonishment. The horse went clear to the bottom safely, and then loped off through Beaver Creek and up the hill on the other side. I do not suppose that one of the horses here in the East could have been *coaxed* down that path among those jagged rocks, by any hook or crook; and yet this horse plunged down boldly without so much as hardly slacking his speed. So much for the matter of education.

About half a mile from the well I found the home of Robert Phinney. As a rule, through the desert mountains and all around Camp Verde the houses are very modest and humble. In fact, it is generally agreed that such expensive homes as we have here in the East are not needed; for snow is seldom seen, and the only frost or freezing is during the night. During the coldest weather it sometimes freezes so as to give the children a little slide early in the morning; but when the sun gets away up high in the middle of the day, it is almost always comfortably warm if you get out in the sun. This is why they put so little expense on their dwellings. But Mr. Phinney's home presents a vivid contrast, and I was a little surprised to see a beautiful house made of hewn stone with contrasting colors—a house that we would call pretty in any town or city in our land. I began to make some inquiries, and was told something like this:

"Oh! Mr. Phinney, he married the schoolma'am, and she made a picture of the house before it was ever built. She's an awful good schoolma'am, and the people like her so well they could not let her go, and so she teaches school now even if she *is* married."

Now, I have not time to tell you *all* about the pretty little home belonging to Mr. and Mrs. Phinney; but I want to say that the inside is fully in keeping with the outside. Books, papers, periodicals, and all the appliances of modern comfort and luxury, are found in that little home. In fact, the furniture is mostly made up of gems of modern date. When I first came in I noticed a beautiful rattan chair with three links of a chain surmounting the back. Friend Elvey pretty soon began to joke with the owner about being an Odd Fellow, even if he was away back in the hills. At this the bright and vivacious mistress of the home looked up inquiringly, and replied:

"Why, my husband is not an Odd Fellow, neither is he a member of any secret society." And then she added, mischievously, "In fact, it was in the bargain before we were married, that, instead of going to lodges and society meetings, he should spend his evenings at home with me."

Now, Mr. P. is a very quiet man. He is every inch a gentleman, and always looks smiling and good-natured, although he does not talk very much. He did not make any reply, only to smile a little *more* good-naturedly at this explanation from his wife. I wish that Mrs. Root, when she gets thus far in reading my story, would please skip say a dozen lines or so; and while she is skipping ahead I want to say to the readers of GLEANINGS, a little aside, that I am not a bit surprised that Mr. Phinney decided in his own mind he would rather spend his evenings with this bright, intelligent little schoolma'am than even to take a *look* toward all that the secret societies and lodges in this whole wide world can offer by way of contrast. If he did not so decide, I am sure *I* should have done so if I had been in his place. Out in the country, I believe that, as a general rule, the husband *does* usually spend his evenings with his wife and children. If there are no children, then there is a still better reason why he should stay at home with the wife, to keep her company.

It is just being discovered in this neighborhood that apples and other fruits grow to wonderful perfection; and these two friends have already put out an orchard of thrifty young apple-trees; and one evening was spent quite profitably and pleasantly in discussing the different varieties of apples; and I was very glad indeed to find that my recent enthusiasm in that direction had given me some knowledge of pomology. Right close by Mr. Phinney's apple-orchard are some wonderful soda springs. The water comes bubbling and boiling up through a bed of white sand. I will tell you about them in our next issue.

THE SUFFERING ARMENIANS.

The National Armenian Relief Committee recently forwarded to Turkey $35,000. They have just received a cable message from the International Committee at Constantinople, of which the British Ambassador is Chairman, acknowledging the remittance, and stating that the funds in hand are entirely inadequate to meet the awful suffering and destitution, and that careful investigation has shown that not less than 40,000 children have been made orphans by the late massacres. These "wards of Christendom" can be easily saved from starvation or debasing enslavement in Moslem homes, and can be cared for at the rate of a dollar a month; but thousands will perish before spring unless generous gifts are sent at once to Brown Bros. & Co., 59 Wall St., New York, who are the authorized treasurers.

SPENCER TRASK, Chairman,
FRED D. GREENE, Secretary.

New York, Feb. 2, 1897.

We clip the above from a communication just received. I may add here that a sum of money sent from Medina a few days ago was reported to be in the hands of missionaries in Armenia within 48 hours, the arrangements by cable enabling us to reach the sufferers thus quickly. Now, there is one hopeful feature to me in the work that is going on. With the activity at present being displayed in relieving the sufferers it does not seem to me that the Turks will dare to go into any more slaughter. If they do, let them beware.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

REDUCED PRICES ON OUR RURAL BOOKS.

Please read over our book list in this and the next issue, and note the great reductions in the price of many of the standard books.

OUR WHITE PLUME CELERY SEED.

For many years past we have been getting our celery seed from one particular house. Their prices are higher, consequently ours are rather higher; in fact, we have had seed offered us by a good many seed-growers at less than half what we now pay; but we were afraid to risk any thing cheaper. Below is a sample of the letters we get in regard to it:

> Mr Root:—The White Plume celery seed that I got from you last season produced the best lot of celery ever grown in this section. Please send me by return mail as follows: . . .
>
> Richfield Springs, N. Y., Feb. 7. L. P. Seaton, Florist.

OUR JERSEY WAKEFIELD CABBAGE SEED.

For many years past, all of our Wakefield seed has come from H. A. March, as our friends may know; and it has been extra select stock seed. Aside from the results obtained on our own ground, year after year, we have had most excellent reports from north, south, east, and west. Last summer we had cabbage from this seed—hard solid heads weighing from 8 to 10 lbs., and almost every plant made a nice head of cabbage. Seed was started in the greenhouse, in the middle of February, planted out in cold-frames in March, and then set out in the field in April. In this way the plants were hardened off so as to be nearly if not entirely equivalent to cold-frame plants. Now is the time to start your seeds under glass. See prices elsewhere.

VEGETABLES UNDER GLASS.

In our issue for Dec. 1, page 871, I reviewed a little book entitled "Vegetable Forcing." I said that, although the price was $1.00, the book was hardly worth 25 cts. Just now, however, we have got a little book from that veteran seedsman, Henry A. Dreer, entitled, "Vegetables under Glass," and it is really a little gem. It really does my heart good to find something on the matter of gardening, especially gardening under glass, from those who have been years in the business, like Henderson, Landreth, or Dreer. The book is profusely illustrated, and the pictures alone are worth the price. The paper and print are beautiful. One feels sorry when he has read it all through, to think there is no more of it. Last, but not least, this little book of over 100 pages is mailed for only 25 cts. We should be glad to furnish it at this price to any who may want it. I may remark that Dreer himself has a single greenhouse covering an entire acre.

HUBBARD SQUASHES.

A man came in last week, saying he had about 100 nice Hubbard squashes, and wanted to know what we would give for them. I paid him 1½ cts. per lb. for 25 of the squashes. We put them on the wagon, and the greater part of them were sold in about two days. We ought to have bought all he had. When I asked him how he managed to keep them until the middle of February he said it was a very easy matter when one has learned how. The squashes must be picked before they are frosted in the least. They must be handled like eggs, and put in a dry room upstairs, where it will not freeze. It will not do to put them in the cellar. Cellars are too damp, and mostly too warm. Keep them in a dry cool room as near freezing as you can, and yet not have them freeze. Now, friends, we have had this same state of affairs winter after winter. Hubbard squashes are quoted in Cleveland at 2 cts. per lb., or *$40.00 a ton,* and you could make lots of money if you got only $5.00 a ton. If you want to try it, we have an extra nice lot of seed at a very low price, especially if wanted in quantity. See price of seeds for 1897, on another page.

GOOD ONIONS ARE WORTH A DOLLAR A BUSHEL.

This is another thing to rejoice the heart of the farmer and gardener. One of the largest onion firms in the United States is here in Medina Co. In fact, their crop last year was so great that it received a kindly recognition in the Agricultural Reports at Washington. Well, after much care and pains they brought their whole crop through the terrible blizzard of the last week of January. In a pleasant letter from one of the firm a few days ago he remarked that they were getting a dollar a bushel for their large fine Red Wethersfields; and if you will consult the market reports you will find that onions are from $2.50 to $3.50 a barrel in all our large cities. Good! Now, friends, there is going to be a scarcity until the new crop is gathered. Perhaps there never was a better opening for onions *started under glass.* Fix up your greenhouses; get your hot-beds and cold-frames going, and get in some onion seeds straightway. See the low prices we quote you in this issue.

SEED POTATOES AS PREMIUMS FOR SUBSCRIBING TO GLEANINGS.

Now it is near to planting-time, please remember that everybody who sends us $1.00 for Gleanings, past, present, or future, may have, as a premium, 1 lb. of Thoroughbred potatoes for every dollar he sends us, or 2 lbs. of any other kind in the list. Still further, if any present subscriber will get us a new name, that is, will get Gleanings going into some neighborhood where it is not now going, we will give him a peck of Thoroughbreds or ½ bushel of any of the other kinds. Of course, you must pay the shipping charges. If any of you like small potatoes for planting, you may have just twice the quantity of seconds. See revised prices below:

Name Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
White Bliss Triumph	$ 15	$ 35	$ 20	$ 35	$ 60	$ 1 00	$ 2 50
E. Thoro'bred, Maule's *	30	75	50	80	1 50	2 25	5 00
Early Ohio...........	15	35		25	40	75	2 00
Early Norther	12			20	35	60	1 50
Burpee's Extra Early....	15	35		25	40	75	1 75
Freeman	15	35		20	30	60	1 50
New Queen .....:..... ...				20	30	50	1 25
Monroe Seedling...... .	12			20	30	50	1 25
Rural New-Yorker No. 2..	12			20	30	50	1 25
Sir William	15	35		20	30	60	1 50
Carman No. 1	12			20	35	60	1 50
Carman No. 3	15	35	20	25	40	75	2 00
Koshkonong.......	15	35		25	40	75	2 00
Manum's Enormous......	15	35	20	35	60	1 00	2 50
New Craig................	15	35	20	35	60	1 00	2 50

*50 strong eyes, by mail, postpaid, $1.00.

We can furnish seconds of the Thoroughbred, Burpee, Freeman, New Queen, Sir William, Carman No. 1, and New Craig, at *half* the above prices. All the others are sold out. Please note that this low price on seconds does not apply to potatoes sent by mail postpaid.

THE NEW QUEEN AS AN EARLY POTATO.

In our experiments last year the New Queen gave good early potatoes almost if not quite as soon as any of the extra earlies. The quality was also, and is now, next to the Freeman. Furthermore, it is less liable to scab than any other potato known, on our Medina clay soil. Last, but not least, it gave us the enormous crop of 375 bushels per acre, right through a pretty good-sized field. Now let me call your attention to the low price at which we offer this splendid early potato—only $1.25 a barrel; and if you care to plant medium-sized and small potatoes, we offer some extra nice seconds at only *63 cts. per barrel.* At these prices the New Queen is perhaps as good a potato for table use as you can find. Our low price is not because they are in any respect behind the others, but because we have almost a thousand bushels to dispose of. Please notice in the table our drop in the prices of Thoroughbred, Burpee's Extra Early, Freeman, Sir William, and Carman No. 3.

MANUM'S ENORMOUS POTATOES.

We would advise all of our readers to send for Manum's circular in regard to these new potatoes. We can mail them to you on application. The reports in regard to the yield and quality are certainly something wonderful, especially those from the experiment stations of Pennsylvania, Ohio, Michigan, Minnesota, Wisconsin, and Massachusetts. All these give it a big recommend. It seems to me, however, that not one of them sufficiently emphasizes the fact that the Enormous will keep away along into the spring and clear through hot weather, in better order for eating or planting than almost any other potato that has been brought before the public.

By the way, I want to quote just one short paragraph in Manum's circular, inasmuch as it indirectly pays quite a compliment to our own Craig Seedling:

"One of our local potato-buyers remarked, after cooking a mess, 'They are the finest potato I ever put on my plate.' This test was made in July, when the potaotes were nearly one year old, which shows their good keeping qualities. In this respect they are not excelled by any variety I ever had, and equaled only by the Craig Seedling."

Permit me to add that, at the very low price we are offering the Enormous, our stock will soon be closed out. We were prevented from giving them a fair test on our own grounds last season, from the fact that they happened to be planted on a piece of ground that was several times under water, in consequence of the extreme and unusual floods when the potatoes were almost mature. The standing in water rotted the Enormous and every other kind of potato.

SPECIAL NOTICES
FROM
BUSINESS MANAGER

OUR CATALOG FOR 1897.

We have succeeded in completing some of the new edition of our catalogs for this year before going to press with this issue of GLEANINGS. During the next few weeks we expect to mail upward of 100,000 catalogs. If we do not get around to your name as soon as you would like, drop us a postal and you will get a catalog back by next mail. We have the wrappers already addressed, but of course it will take time to print and mail so large an edition.

SCREEN WIRE CLOTH.

There seems to be a strife between the manufacturers of window-screen wire cloth, and very low prices are ruling. We are prepared to furnish any of the ordinary widths, 24, 26, 28, 30, 32, 34, and 36 inches in full rolls, 100 feet long, at $1.25 per 100 square feet, making the price of a full roll, 24 inches wide, $2.50; 30 inches wide, $3.13; and 36 inches wide, $3.75, and other widths in like proportion. Cut pieces of not less than 20 square feet at 1½c per square foot. The color of cloth furnished will be green unless otherwise specified.

AUGITE MATS, AGAIN.

We supposed that the last reduction made in the price of these mats would be the very last; but we are obliged to record a further reduction. This, too, is for the original and genuine augite mat which is, and always has been, the best one made. We now offer them, postpaid, at 10 cts. each; 3 for 25 cts.; 1 doz., 85 cts. Not prepaid, 5 cts. each; 3 for 10 cts.; 35 cts. per doz.; $3.50 per gross. Here is a chance to do you self and your neighbors some good. You could easily sell these mats at 5 cts. each from house to house, and leave a blessing wherever you sell a mat, and at the same time make a fair profit for your work.

BOARDMAN FEEDER.

This feeder was in great favor last season for spring feeding, and large quantities were sold. We find that in some sections of the country the Mason jars are not in common use.

We have not only arranged for a carload of Mason jars so as to supply them at low prices to those who can not get them reasonably near home, but we have devised a special cap to fit the Lightning jar, which is more common in some places. We find this jar, with the special cap, fits nicely the regular feeder-box made for Mason jars. These special caps for Boardman feeders, made for either Lightning or Mason jars, without the wooden box, will be supplied at 8c each; 80c per doz.; $6.00 per 100. Unless you specify when you order, we will send them to fit the Mason jars. These special caps can be sent by mail for 2c each extra; dozen lots, 15c for Mason tops; 10c for Lightning, to cover postage.

AGENCIES.

Owing to long-continued ill health our Florida agency at San Mateo, in charge of A. F. Brown, has been discontinued. Mr. Brown still has quite a stock of some lines of goods which he will dispose of as he has opportunity, and he may be reached by addressing him at Seminole Grove, Harwood, Volusia Co., Fla. Wm. A. Selser, taking charge of our agency at No. 10 Vine St., Philadelphia, Pa., is prepared to supply the southern trade, especially on the eastern coast. He has arranged to ship either from New York or Philadelphia on special through rates by boat. The Rawlings Implement Co. continue to handle our goods at Baltimore, Md.

The bee supply business conducted in Denver, Colo., by Barteldes & Co., is now in the hands of the L. A. Watkins Mdse. Co., who have taken over the stock and good will, and will continue to supply our goods.

CARLOAD SHIPMENTS.

We have shipped so far this season an assorted carload of supplies to J. M. Jenkins, Wetumpka, Ala., who is the leading supply dealer in Dixie. We have also shipped a carload to D. M. Edwards, Uvalde, Texas, which is one of the best honey-producing sections of that State. Another car has just gone to Jos. Nysewander, Des Moines, Ia. Geo. E. Hilton, of Fremont, Mich., has also had a car, consisting in large part of his chaff hive, which is deservedly popular in his section. As we go to press we are loading a car for Syracuse, N. Y., which will be followed as soon as possible by one for Mechanic Falls, Me., Philadelphia, Pa., St. Paul, Minn., Chicago, Ill., and to Buell Lambertson, Portland, Or. We have already shipped one large carload across the big pond to Scotland, and are loading another as we go to press, which will also be followed by two more cars, a little later, for which orders are already in, and goods nearly ready. We are running full time, and shall likely be running over time soon. We anticipate a heavy trade this season, and advise our customers to get their orders in early, that you may not be disappointed.

ADDITIONS AND CHANGES IN PRICES.

Besides the improvements mentioned in last issue of GLEANINGS in the Hoffman frames, covers, bottoms, etc., and the change in numbering hives as well as the lower prices on hives, we call attention to other changes as follows: The new list of prices on sections published in last issue, and new prices on foundation noted in a previous issue. Prices of smokers are changed. The Corneil is now 75c, and the Crane $1.25; by mail, 25c each extra.

New prices on Bingham smokers will be found on another page of this issue. More prominence is given to the Porter bee-escape, which, as a labor-saving implement, is not half appreciated by bee-keepers generally. Unfortunately the first catalogs printed have the old price on the honey-house escapes. The new price on this form of escape adopted for this year is 25c each; $2.75 per doz., postpaid or with other goods. We call attention to improvements in shipping-cases.

For the benefit of eastern and southern customers who use square glass jars, we have made arrangements with a manufacturer in the East whereby we are able to make shipments direct from New York or Philadelphia, and at slightly lower prices. To secure these prices, however, your order must be for at least 2 gross of 5 or 8 oz. sizes, and 1 gross 1-lb. size; ¾ gross 2-lb. size. These are regular-sized packages, and they can not be repacked to supply smaller quantities except at an advanced price.

We are also offering Mason fruit-jars very low, but will not be ready to deliver them for about six or eight weeks from this date. Enameled cloth we have been obliged to mark up to 25c a yard; $2.50 per piece of 12 yards.

WIRE-CLOTH STAPLES.

We have a little staple 3/16 wide, 3/8 long, that is far superior to a tack for attaching wire cloth to queen-cages, hives, door, and window-screen frames, etc. They are very fine, and a great many to a pound. We can supply ¼-lb. package at 5c; by mail, 10c; 1 lb., 15c; 5 lbs., 60c. Postage extra, 18c per lb.

END-SPACE STAPLES.

Those who wish to try the end space staple and shortened top-bar, as mentioned in last issue, will find the special staples we have had made for the purpose, superior to any regular staple you will find in the market. We will furnish ¼ lb., sufficient for 100 frames, with gauge for driving, for 5c, or by mail for 10c. Price of 1 lb. will be 15c; 5 lbs., 60c. By mail, 18c per lb. extra for postage and packing.

Comb Foundation.

WEED NEW PROCESS TRADE MARK

Cheaper and better than ever; clear as crystal, for you can read your name through it. Process and machinery patented Dec. 8, 1896, and other patents pending. Samples of the new foundation free.

Root's Goods.

Before placing your order for this season, be sure to send for Root's

1897 Catalog, ready now.

Our 1897 hives, with improved Danzy cover and improved Hoffman frames, are simply "out of sight." Acknowledged by all who have seen them to be a great improvement over any hive on the market, of last year.

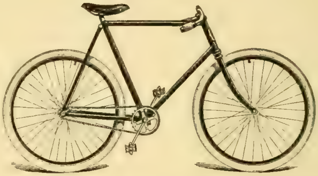
The A. I. Root Co.,
Main Office and Factory, Medina, Ohio.
Branch offices at 118 Michigan St., Chicago; Syracuse, N. Y.; St. Paul, Minn.; Mechanic Falls, Me.; No. 10 Vine St., Philadelphia, Pa.

The Cultivator,

Published semi-monthly at Omaha, Nebraska, is the leading authority on fruit grown in Nebraska, and on general agriculture in the West. Send for sample copy and free strawberry-plant offer. Address

The Cultivator, Omaha, Neb.

1897.



Cleveland Bicycles.

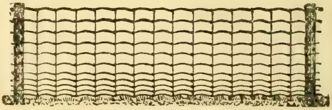
Every piece and part of the Cleveland Bicycle is made in our own factories by the best of skilled workmen, under most rigid inspection. The result is a Bicycle embodying, in a marked degree, features of safety, speed, and durability.

THERE'S HONEST VALUE IN IT.

We want the patronage of intelligent and discriminating buyers. 1897 catalog mailed free for the asking.

H. A. LOZIER & CO.,
Cleveland, Ohio,

Send 4 cents postage for our booklet, "Shakespeare and the Bicycle." Twelve illustrations in colors by F. Opper, of "Puck."



PALACE CAR OR HAND CAR.

If you were going on a journey and the P. W. W. F. Co. offered you a reasonable rate over their **"Coiled Spring Route,"** splendid service, safety guaranteed—would you take it? Or, to save expense, would you "pump" yourself over the road on a hand car? If you choose the latter, **be sure the hand car has the right of way.**

PAGE WOVEN WIRE FENCE CO., Adrian Mich.

1500 Bbls. Sweet-potato Seed.

Yellow Jersey, Carolina, and Nansemond, selected size, $2.50 per barrel; 2d size, $1.75 per Bbl.

Red Jersey and R. Nansemond,	2.50	"
Red Bermuda and Red Spanish,	2.75	"
South. Queen and Bahama White,	2.75	"
Vineless or Gold Coin Prolific,	4.00	"

Discount of 25c per bbl. on 5 bbl. lots.
Send for free circulars. Adddress

L. H. MAHAN, Box 143,
Terre Haute, Ind.

A BARGAIN IN BEE-KEEPERS' SUPPLIES,

Is when you get
The best quality of goods,
At the lowest prices,
And get them prompt,
And with small freight charges.

This is just what we can do by our 1897 customers. Estimates cheerfully given on any bill of goods wanted. Special inducements for early orders. Address

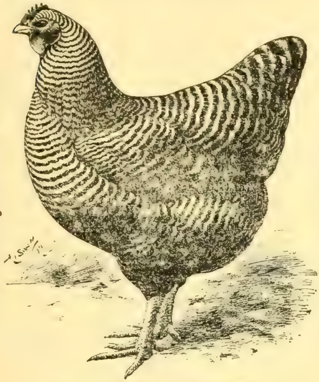
JOSEPH NYSEWANDER, Des Moines, Iowa.

Please mention this paper.

ONE HUNDRED DOLLARS AN ACRE

Can only be made from one source—***POULTRY.*** Wheat and corn do not pay by comparison. You may smile, but have you ever tried keeping poultry ***right***. The egg basket is a handy source of revenue these hard times. **THE POULTRY KEEPER,** Box 63 **PARKESBURG, PA.** 50cts. a year tells how it is done. Sample ***free.*** The paper 1 year and four grand Poultry Books, $1. Write to-day.

Barred Plymouth Rocks,



S. C. Brown Leghorns, Lt. Brahmas.

LADY MARTHA WASHINGTON.

The illustration presented above represents one of the most remarkable B. P. Rock hens ever produced. She was hatched and raised by J. W. Whitney, of Chatham, Ohio. Is now four years of age, and has won the following list of prizes:

1st prize at Washington, D. C., Jan. 12-16, 1897.
1st " Hagerstown, Md., October, 1896.
2d " West Chester, Pa., October, 1896.
2d " Reading, Pa., October, 1896.
2d " Toledo, Ohio, January, 1896.
2d " Medina, Ohio, December, 1895.
3d " Medina, Ohio, January, 1895.

To those of our readers who are interested in poultry we would say Mr Whitney's circular contains a full description of his fowls and valuable information as well. It is free. Write for it.

SYRACUSE SUSPENSORY SUPPORTS

and protects the scrotum, and should be worn in every case where there is any drooping of the scrotum. It is especially recommended to wheelmen, equestrians, base-ball, foot-ball, and lawn-tennis players, athletes, men doing heavy work, much walking or standing, etc. Ask your physician's advice about wearing a Suspensory—perhaps it will relieve your backache. Our $1.00 grade is very popular, and your dealer, or we, will sell you one and refund money if not perfectly satisfactory. For sale by all druggists and dealers in athletic goods. Send for price list. A. J. WELLS MFG. CO.,
250 Tallman Street, Syracuse, N. Y.

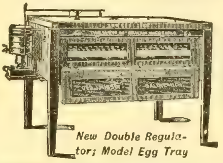
Sweet Potatoes.

½ pk. G. C. Prolific, ½ pk. G. Grant, 3 pks. Yellow Jerseys, all for ONE DOLLAR. Here is an opportunity to try the *new vineless* varieties at a small cost.
J. Q. MULFORD, Lebanon, Ohio.

Yell, O Yell, O'YELLOWZONES.
YELLOWZONES for PAIN and FEVER.

Do You Want An Incubator?

An Honest Machine, Honestly Built,



Sold Under a Positive Guarantee.

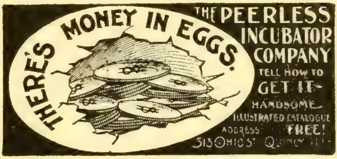
New Double Regulator; Model Egg Tray

"NEW AMERICAN."

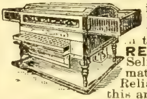
Want Our Catalogue?

It's a pretty book of 68 pages, finely illustrated; worth dollars to every poultryman. A 2c stamp gets it.

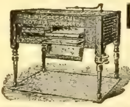
GEO. J. NISSLY, SALINE, MICH.


THERE'S MONEY IN EGGS.
THE PEERLESS INCUBATOR COMPANY
TELL HOW TO GET IT—
HANDSOME ILLUSTRATED CATALOGUE FREE!
ADDRESS: 513 OHIO ST. QUINCY, ILL.

NEVER BEATEN



in all the many shows in which it has participated, there must be something in the superiority claims of the **RELIABLE INCUBATOR** Self regulating, entirely automatic, you put in the eggs, the Reliable does the rest. All about this and many things of value to the poultry man in our new book. Send 10 cts. for it.
RELIABLE INCUBATOR & BROODER CO., QUINCY, ILLS



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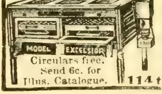
THE SUCCESSFUL INCUBATORS.

LIFE PRESERVERS

THE SUCCESSFUL BROODERS.
All about them in our catalogue.
—Sent for 6 cents.—
DES MOINES INCUBATOR CO., Box 503 **DES MOINES. IA.**

HATCH Chickens BY STEAM— With the **MODEL**



Circulars free. Send 6c. for Illus. Catalogue.

EXCELSIOR Incubator

Simple, Perfect, Self-Regulating. Thousands in successful operation. **Lowest priced first-class Hatcher made.**
GEO. H. STAHL.
114 to 122 S. 6th St. Quincy, Ill.

MUTH'S HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
ROOT'S GOODS AT ROOT'S PRICES,

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. **"Practical Hints"** will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Revised Price List of Garden Seeds for Feb. 15.

Please notice that any or all seeds mentioned below are sold in five-cent packages, postpaid by mail. For 10 papers ordered at one time, 40 cts.; 100 papers, $3.50. Of course, scarce and high-priced seed will necessitate making only a very small amount of seed in a package; but by far the greater part of them contain a full half-ounce of good fresh seeds. By comparing these packages with those you get of many of the seedsmen you will notice the liberal amounts we furnish for only 5 cts. It is true, we do not give presents or cash prizes; but we believe the most intelligent people of the present day would prefer to have their money's worth of what they ordered, rather than to compete for a prize. The five-cent packages are sent postpaid; but the price of all other seeds does not include postage; therefore, when you order seed by the ounce or pound, allow postage thus: 9 cts. per lb.; 5 cts. per ½ lb., or 1 ct. per oz. Peas and beans by the pint and quart must also have 8 cts. per pint or 15 cts. per quart; for corn, add 12 cts. per quart for postage. Postage to Canada is double the above rates. One-fourth ounce, pound, or peck, will be sold at ounce, pound, or peck rates unless otherwise specified. In the enumeration below, no description of the seeds is given, as you may notice. Our complete catalog, with full description, will be mailed on application if you have not already received it.

ASPARAGUS.

Asparagus, Palmetto. Oz. 5c; lb. 40c.

Asparagus Roots. 2 year old. Palmetto, 10 for 10c; 75c per 100; $6.00 per 1000. 2-year-old roots not mailable. 1 year roots, 10, 10c; 100, 50c; 1000, $4. By mail, add 5c for 10; 25c for 100.

BUSH BEANS.

Kumerle's Bush Lima. Qt. 25c; ½ pk. 75c; pk. $1.25.

Burpee's Bush Lima. Pt. 15c; qt. 25c; ½ pk. 75c; pk.. $1.25; bu., $4.50.

Henderson's Bush Lima. Pt. 10c; qt 18c; pk. $1.00; bu. $3.75.

Kidney Wax. Qt. 10c; pk. 60c.

Best of All. Qt. 5c; peck, 40c.; bush., $1.25.

White Kidney, Large. Pt. 8c; qt. 15c; pk. 75c; bu. $2.75.

York State Marrow. The best field bean. Qt. 10c; peck 75c; bu. $2 50.

Navy. Qt. 5c; pk. 35c; bu. $1.25.

POLE BEANS.

Extra-Early Lima Beans. Price, ½ pt., 8c; qt 20c; peck $1.00.

King of the Garden Lima. ½ pt. 8c; qt. 20c; peck, $1.00.

All of our beans will be furnished in 5-cent packages; but where they are to go by mail, postpaid, of course the above packages will have to be quite small. If wanted by mail, add 8c per pt. or 15c per qt. for postage.

BEETS.

Eclipse. Oz. 5c; lb. 25c; 5 lbs. $1.00.

Lane's Improved Sugar. Oz. 5c; lb. 15c; 5 lbs. 60c.

Long Red Mangel. Oz., 5c; lb., 15c; 5 lbs., 70c; 10 lbs., $1.20, 20 lbs. or more, 10c per lb.

Golden Tankard. Oz., 5c; lb., 15c; 5 lbs., 70c; 10 lbs., $1.20; 20 lbs. or over, 10c per lb.

CABBAGE.

Select, Very Early Jersey Wakefield. *Stock seed.* Oz. 20c; lb. $2.50.

Henderson's Early Summer. Oz. 10c; lb. $1.00.

Fottler's Brunswick. Oz. 10c; lb. $1.10.

Burpee's Sure-head. Oz. 10c; lb. $1.10.

Excelsior Flat Dutch. Oz. 10c; lb. $1.00.

Perfection Drumhead Savoy. Oz. 10c; lb. $1.25.

Large Red Drumhead. Oz. 10c; lb. $1.25.

CARROTS.

Early French Forcing. Oz. 5c; lb. 50c.

Orange Danvers, Half-Long. Oz. 5c; lb. 50c.

CAULIFLOWER.

Henderson's Early Snowball. Raised by H. A. March. ⅛ oz. 25c; ¼ oz. 40c; oz. $1.50.

CELERY.

Henderson's White Plume. Oz., 20.; lb., $2.00.

Golden Self-Blanching Celery. Oz., 20c; lb., $2.00.

New Rose. Oz. 20c; lb. $1.75.

Giant Paschal. Oz. 20c; lb. $1.50.

Dwarf Golden Heart. Oz. 10c; lb. $1.25.

CORN (FOR TABLE USE).

Corn we sell at 5c per half-pint package; but at this price purchasers must pay the postage, which is 3c for each half-pint. If wanted in larger quantities the price (where no price is given) will be, pt., 7c; qt., 10c; pk., 50c; bu., $1.75.

Cory's Extra Early *(white cob).*

Stowell's Evergreen. Pk. 40c; bu. $1.25.

Ford's Early Sweet.

Late Mammoth Sugar.

Country Gentleman, or **Improved Shoepeg.** Pk. 40c; bu. $1.25.

Sweet Corn for fodder. Pk. 30c; bu. $1.00.

CORN SALAD.

Oz. 5c; lb. 40c.

CRESS.

Extra Curled, or Pepper Grass. Oz. 5c;lb.30c.

Water Cress, *true.* Oz. 30c; lb. $3.50.

Watercress-plants, strong and nicely rooted. Postpaid, by mail, 10 for 15c; 100, 50c.

CUCUMBER.

Early Frame. Oz. 5c; lb. 30c.

Improved Early White Spine, or **Arlington.** Oz. 5c; lb. 30c.

Green Prolific, or Boston Pickle. Oz. 5c; lb. 25.

LETTUCE.

Grand Rapids Lettuce. Oz. 5c; pound, 50c; 5 lbs. $2.00.

Boston Market (or White-seeded Tennis-ball). Oz., 5c; lb., 50c.

Henderson's New York. Oz. 5c; lb. 50c.

MELONS, MUSK.

Casaba, or Persian Muskmelon. Oz. 5 cts.; lb. 30c.

Extra Early Citron. Oz. 5c; lb. 40c.

Banana. Oz. 5c; lb. 40c.

Emerald Gem. Oz. 5c; lb. 40c.

Miller's Cream, or Osage. Oz. 5c; lb. 40c.

MELONS, WATER.

Phinney's Early. Oz. 5c; lb. 30c.

Landreth's Boss. Oz. 5c; lb. 30c.

Sweetheart. Judging from a barrel of melons sent us last August, we should place this, for quality, ahead of all other watermelons. Oz. 5c; lb. 30c.

ONION.

Yellow Globe Danvers. Oz. 5c; lb. 60c; 5 lbs. $2.50.

Large Red Wethersfield. The standard red onion. Oz. 5c; lb. 60c; 5 lbs., $2 50.

Prize Taker. Oz. 10c; lb. $1 10.

White Victoria. Oz. 20c; lb. $2.50.

American (Extra Early) **Pearl.** Oz. 25c; ½-lb. $1. lb. $2.50.

Extra Early Red. Oz. 8c; ¼ lb., 25c; lb. 75c.

ONION-SETS.

By mail 10 cents per quart extra.

Best Yellow. Qt. 15c; pk. 60c; bu. $2.00.

Extra Early American Pearl. Qt. 20c; pk. $1.00 bush., $3.50. See American Pearl *seed.*

White Prizetaker *(new).* Same price as American Pearl.

White Multiplier. Price 10c per pint; 15c per qt; pk. 75c; bu. $2.75. By mail, 10c per qt. extra.

Winter, or Egyptian Onion Sets. Prices, 5c per qt., or 35c per peck; $1.00 per bush.

PARSNIP.

Improved Guernsey. Oz. 5c; lb. 25c; 10 lbs., $2.00.

PARSLEY.

Fine Curled or Double. Oz. 5c; lb. 40c.

PEAS.

Alaska. ½ pt., 5c; peck. 75c; bush., $2.50.

American Wonder. Qt. 15c; pk. $1.00; bu. 3.75.

Premium Gem. ½ pt. 5c; peck, 90c.; bu., $3.25.

Stratagem. ½ pt. 8c; qt. 20c; pk. $1.25; bu. $3.90.

Champion of England. Pint, 10c; pk. 75c; bushel, $2.50.

Peas by mail will be at same rate as beans for postage.

PEPPERS.

Sweet Spanish. ¼ oz. 8c.; oz. 20c.
Bullnose. ¼ oz. 5c; oz. 12c.
Cayenne ¼ oz. 8c; oz. 15c.

PUMPKIN.

Early Sugar. Oz. 5c; lb. 35c.

RHUBARB.

Myatt's Victoria. Oz., 5c; lb., 75c.

Roots, 10c each; 50c for 10; $3.50 per 100. *Small* roots postpaid by mail at above prices.

RADISHES.

Early Scarlet Globe. Pkt. 5c; oz. 5c; lb 40c.
Wood's Early Frame. Oz. 5c; lb. 35c.
Beckert's Chartier. Oz. 5c.; lb. 40c.
Chinese Rose Winter. Oz. 5c; lb. 35c.

SALSIFY, OR OYSTER PLANT.

New Mammoth. From Sandwich Islands. Oz 8c; lb. 60c.

SPINACH.

Bloomsdale Extra Curled. Oz 5c; lb. 18c. 5 lbs. 75c; 10 lbs. $1.25

SQUASH.

Giant Summer Crookneck. Oz. 5c; lb. 40c.
Hubbard. Oz. 5c; lb. 30c; 5 lbs. $1.25; 10 lbs. $2.25.

TOMATO.

Golden Queen. Pkt., 5c; oz., 15c; lb., $2.00.
Ignotum Tomato. ½ oz 8c; oz. 15c; lb. $1.50.
Livingston's Beauty. Oz. 20c; lb. $2.00.
Dwarf Champion. oz. 20c; lb. $2.00.
Livingston's New Stone Tomato. Oz. 20c; lb. $2.00. A very fine large tomato for main crop.
Fordhook Early. The best *early* tomoto we have tested. Oz 35c; lb. $4.50.
Buckeye State. Oz., 20c; ¼ lb., 60c; lb., $2.25.
Trophy Tomato. Oz. 10c; lb. 75
Pear-Shaped Tomatoes. Oz. 20c; lb. $2.50.

TURNIP.

Purple-top White-globe. Oz. 5c; lb. 30c; 5 lbs. $1.25.
Yellow Aberdeen. Oz. 5c; lb. 30c.
Breadstone. Oz. 5c; lb. 30c.
White Egg. Oz. 5c; lb. 30c.

Novelties for 1897.

Davis Wax Bean. Pt., 10c; qt., 18c; 4 qts., 65c; pk., $1.25; bu., $4.00.

First and most important, perhaps, is the Davis wax bean This was brought out by Eugene Davis, of Grand Rapids, Mich., the man who gave the world the Grand Rapids lettuce. This wax bean may not be specially superior to others in its crop of snap beans; but it has one advantage over all wax beans that have hitherto appeared. When it ripens it gives a pure white kidney-shaped shell bean; therefore if you do not succeed in selling your whole crop in the green state you can just let them ripen, harvest them, and what you do not want to plant can be sold as a table bean. All other wax beans are more or less colored and spotted, and a white bean is the only one that will sell everywhere for table use. The Davis wax bean is as early as any, as bright and clean, as free from rust, and are fully as large yielders. Some of the catalogs claim that it excels in one or all of these particulars. After having grown quite a good many I should call it fully equal to any, but I think not greatly superior. We offer seed of our own growing at above prices.

Earliest-in-the-world Tomato. ⅛ oz., 15c; ¼ oz., 25c; ½ oz., 40c; oz., 75c.

In a test of nearly all kinds offered this was nearly a week ahead, and they gave us as nice, handsome, smooth tomatoes as any "in the world." They are not very large; but as it is quite fashionable now to can tomatoes whole, these will be just the thing, for they yield wonderfully. Where they are given plenty of room the plants will often blossom and set green fruit in the seed-bed. This will do no harm, however, for we transplant them to the field with the blossoms and little tomatoes on; and these little tomatoes are the first to ripen. The seed is of our own growing. We would place the Fordhook next, as it is equally handsome, and of good size, although it is about a week later. This seed is also of our own raising, from selected fruit. Oz., 35c.

American Coffee-berry. Package, 5c.

This is probably a variety of the soja beans. At first we were inclined to think from the appearance that it was the same; but on making it into coffee we had to admit that the coffee berry is something different, and much more like genuine coffee. If I were going to use coffee at all I should prefer this to the real thing—principally, however, because it is nourishing instead of being stimulating. Our stock is so limited that we can for the present furnish it only in five-cent packages.

Mills' Banner Bean. Package, 5c.

This a plain white bean, looking much like the York State marrow; but last season it gave us the largest yield of any thing I ever saw with any of the bean family. At present we can furnish the seed only in five-cents packages.

Northern Prolific Upland Rice. Package, 5c.

This will certainly grow in ordinary soil, for we had quite a success with a little bed of it in our garden across the way. It looks just like ordinary rice, but it seems to yield quite well with ordinary care and culture. We can furnish it only in five-cent packages.

Whittaker Onions. Large—qt., 10c; pk., 75c; bu., $2.50; small (sets)—qt., 18c; pk., $1 25; bu., $4 00.

These have been so fully described during the past year we will only add that they are probably an improved and exceedingly hardy variety of potato onions. They can be planted out at any time in the spring or fall. They multiply exactly like the White Multipliers. Price of either the Whittaker or White Multiplier, large onions, just right to plant out to produce small ones; or small sizes (called sets) of either of the above, as above quoted.

Bunch Yams and Vineless Sweet Potatoes.

These also have proved themselves a success during the past season; but it is too early now to give prices of either plants or tubers. As soon as the weather will permit we shall be on hand with both.

THE A. I. ROOT CO., Medina, Ohio.

FEED YOUR BEES
WITH BASWOOD. PROTECT THEM WITH EVERGRENS.
100, 2 to 5 feet, **$10. 100 Baswood Seedlings, $1.** Delivered free. Other sizes just as cheap. **50 $1.00 Bargains** by mail. Millions to select from. Also **Fruit Trees, Small Fruits, Vines, etc. Liberal cash** commissions for **clubs. Illustrated catalogue free.** Good local Salesmen wanted. Address
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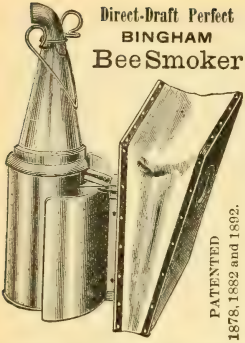

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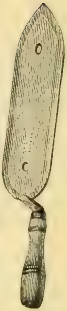
		Dozen.		Each.
Smoke Engine (largest smoker made.)	4 in. stove	$13.00—	mail,	$1.50
Doctor	3½ "	9.00—	"	1.10
Conqueror	3 "	6.50—	"	1.00
Large	2½ "	5.00—	"	90
Plain	2 "	4.75—	"	70
Little Wonder (wt. 10 oz.)	2 "	4.50—	"	60
Honey-knife		6.00—	"	80

All Bingham smokers are stamped on the metal, patented 1878-1892—Knives, B & H.

The four larger sizes have extra wide shields and double-coiled steel-wire handles. These **shields and handles** are an **amazing comfort**—always cool and clean. No more sooty nor burnt fingers. The plain and Little Wonder have narrow shields and wire handles. All Bingham smokers have all the new improvements, viz: Direct draft, movable bent cap, wire handles, inverted bellows, and are **absolutely perfect.**



Patented May 20, 1879.

Bingham & Hetherington Uncapping-knife.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

DEAR SIR:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer, I write for a circular. I do not think the four-inch Smoke Engine too large. Truly, W. H. EAGERTY,
Jan. 27, 1897. Cuba, Kansas.

I have used Bingham Smokers ever since they were out. Working from three to seven hundred colonies, twelve months in the year, I ought to know what is required in a smoker. The Doctor, 3½ in., just received, fills the bill.
Respectfully, O. W. OSBORN,
July 14, 1896. Corning, California.

DEAR SIR:—Smokers came O. K. They are the best I have ever seen Sell like hot cakes. Resp'fully, WM. BAMBER,
August 7, 1896. Mt. Pleasant, Mich.

With a Bingham Smoker that will hold a quart of sound maple wood the bee-keeper's trials are over for a long time.

Who ever heard of a Bingham Smoker that was too large, or did not give perfect satisfaction? The world's most scientific and largest comb-honey producer uses Bingham Smokers and Knives. The same is true of the world's largest producer of extracted honey. Before buying a smoker or knife hunt up its record and pedigree.

T. F. BINGHAM,
Farwell, Mich.

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My first carload of goods from **The A. I. Root Co.** has arrived, and I am in shape to fill all orders promptly at their catalog prices. Send for my 36 page catalog; also send a list of what goods you will need, and I will make you special prices on early orders.

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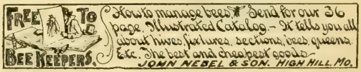

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Queens and bees for 1897 at bottom prices.
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CHAS. H. THIES, Steeleville, Ill.

The Testimony.

"They knock headaches clear to the horizon."
"It's a rare pleasure to find such a remedy."
"Too much can not be said in praise of them."
"I was suffering from Neuralgia, and found quick relief."
"I got more relief from Rheumatism in 12 hours after taking Yellowzones than from all else, tho' I was a skeptic."

Yellowzones For Pain & Fever. **An honest** efficient remedy for all Fevers, Headaches, Colds, Grip, Rheumatism, Neuralgia, etc. A general-service remedy that will please you, *or money refunded.*

1 Box, 25c; 6 for $1. Most orders are for 6.

Circular Free. **W. B. House, M. D., Detour, Mich.**

In writing to advertisers please mention this paper.

CALIFORNIA. Mountain bee ranch for sale. Good location; telephone connection with three railroad stations.
D. O. BAILLIFF, Banning, Cal.

FOR SALE.—A pet female deer, nine months old; very playful, and fond of people. Price $5.00, or will exchange it for St. Bernard pup. Particulars furnished. B. R. RUSSELL, San Saba, Tex.

EARLY QUEENS from good stock (one yard averaged 420 lbs. in '94). Have kept bees since '74; sold **thousands** of queens the past six years. **Price** $1.00, March and April. Free catalog.
J. B. CASE, Port Orange, Fla.

COLUMBIAN RASPBERRY, $2.50 per doz; currant, gooseberry, grapevines, $1.00 per doz., prepaid; chestnut and English walnut, 25c each, prepaid; Pearl gooseberry, 50c each.
T. G. ASHMEAD NURSERY, Williamson, N. Y.

WANTED.—To exchange Japan plum trees for extracted honey or offers. Abundance, Burbank, and Satsuma; 5 by mail, 60c.
JOHN CADWALLADER, North Madison, Ind.

For Sale.

At only $3.00 per hive, fine Italian bees with good queens.

JNO. A. THORNTON.
LIMA, ILLINOIS.

Bargains in Second-hand Bicycles.

We have on hand two ladies' Defiance bicycles, made by the Monarch Cycle Co., of Chicago, and listed at $75.00. These are last year's models, and were used by the women of Rootville last season. The two machines are in first class running order; and as they were ridden but little they are practically as good as new. They have Garford spring saddles, reversible handle-bars, 1⅛-inch tubing, Morgan & Wright quick-repair tires. Weight, 25 lbs. each. Catalogs and particulars will be furnished on application. We will re-enamel them, and sell them for $40.00 each, or the two for $77.50. Beeswax or honey at market prices will be accepted in payment. Reason for selling—we are going to have a tandem instead for '97.

A $100 Rambler Racer bicycle for $35.00 cash, or $40.00 in trade for wax or honey at market quotations. The wheel weighs only 20 lbs.; has a new set of Rambler clincher tires, and is almost as good as new. It was ridden by A. I. Root during part of '96, and is just the bicycle for a boy or light-weight man. Further particulars given by applying to
THE A. I. ROOT CO., Medina O.

Wants and Exchange Department.

WANTED.—To exchange blackberry and raspberry plants for bees, bee-keepers supplies, honey, extractor, incubator, shotgun, rifle, or fly-rod. Write me what you have to exchange.
W. G. CHAMBERLAIN, Pittsfield, Me.

WANTED—A young American man would like a position in some western apiary. Had 2 years' experience. Would prefer a good chance to learn rather than first-class wages. Can give good recomend. eoi. A. E. FORD, Fitchburg, Mass.

WANTED.—To exchange clarionette, rubber-stamp outfit, or printing-press, 9x13, for typewriter or incubator.
J. D. NAFTZGER, Box 56, Hanna, Ind.

WANTED.—Printing-press, photographic outfit, camera, magic lantern, phonograph, graphophone, music box, volumes of phrenological and scientific journals, books of all kinds, good sheep and hogs, fountain pen. J. MCQUEEN, Baltic, O.

WANTED.—Situation in an apiary, market-gardening farm, or other work. Age 24. Reference given. C. A. SCHMID, Glen Allen, Bol. Co., Mo.

WANTED.—A position in apiary. No objections to other work in connection. Age 19. References given and wanted.
F. W. MANLEY, Yale, Mich.

WANTED.—To exchange blackberries, Erie and Minewaska; raspberries, Turner, Hansell, and Souhegan; or fine extracted honey, for Japan plum, Dutchess and Bartlett pears, apple-trees, or strawberry-plants. S. A. JACKSON, Ft. Wayne, Ind.

WANTED.—To exchange strawberry plants—Gandy, Great American, Parker Earle, Sharpless—and raspberry plants—Golden Queen, Cuthbert, and Marlboro—for nice comb or extracted honey.
DAN'L LEIBE, Cherry Hill, Bergen Co., N. J.

WANTED.—To exchange 2000 Ohio and Hopkins raspberry plants, valued at $6.00 per 1000, for extracted honey or comb foundation.
R. G. ROBERTSON, Marshall, Mo.

WANTED.—Ten nuclei; also Craig Seedling potatoes at Root's prices for sale. Address
P. M. BYERLY, Farley, Dubuque Co., Iowa.

WANTED.—A married man to work on a dairy farm, by the year or month. Must come with a good recommend. House and fuel furnished.
D. H. COGGSHALL, West Groton, N. Y.

WANTED—To dispose of part or all our bee interest here, consisting of supplies and bees to run three apiaries of 100 colonies each. Famous health resort on Cumberland Plateau; best society, plenty of bee-forage. What have you to offer in exchange? THOS. C. STANLEY, Monteagle, Tenn.

WANTED.—To exchange one Root's make section-machine (in fine order) for band-saw or offers.
THE GEO. RALL MFG. CO., Galesville, Wis.

WANTED.—Canvassers to solicit orders for my permanent crayon portraits. Good wages assured. Write for particulars. W. A. BALDWIN,
Portrait Artist, Medina, Ohio.

WANTED.—To exchange 60-lb. cans in good order, valued at 25 cts. each, delivered, for comb or extracted honey at the market price.
B. WALKER, Evart, Mich.

WANTED.—A location for a custom saw and feed mill. W. S. AMMON, Reading, Pa.

WANTED.—To exchange bees in Root's chaff hives, for band-saw, or planer and matcher, or offers. M. LUDTMAN, Hannibal, Monroe Co., O.

WANTED.—Young man to sell milk, butter, honey, and eggs, from wagon, regular route.
AARON SNYDER, Kingston, N. Y.

WANTED.—To exchange a 10-inch Pelham fdn.-mill, tank, and dipping-boards, for camera or offers. E. J. C. TROXELL, Ft. Seneca, O.

WANTED.—A violin-player would like employment where there is a chance to play in orchestra. Some experience at bee-keeping. Handy at almost any thing. Strictly sober and attend to business. FRED C. FULLER, Montague, Mass.

WANTED.—To exchange nice comb honey for thin foundation. L. WERNER, Edwardsville, Ill.

WANTED.—50 colonies of bees along the Ohio or Mississippi Rivers State prices and kind of hives. A. CARDER, Hebron, Boone Co., Ky.

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My New Seed Book tells all about the best varieties of **ONIONS** and everything of interest in Seeds; how to grow them for profit, etc.

WRITE TO-DAY. **SEND 4 cts.** To cover postage. MENTION THIS PAPER

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Good Plants Cheap.

Palmer raspberry plants,	50c per 100,	$4.00 per 1000
Gregg "	50c "	4.00 "
Wm. Belt strawberry,	75c "	
Brandywine "	75c "	5.00 "
Glen Mary "	30c per doz.	
Bubach "	75c per 100.	2.50 "
Tennessee Prolific,	75c "	

DAN WHITE, New London, Ohio.

A Novelty Offer in Vegetables.
ONLY 15 CENTS.

New Cardinal Beet.—Most desirable in shape and color; very early; cooks dark red.

Evergreen Cucumber. — Color, deep green; desirable for slicing or pickling.

Grand Rapids Lettuce.—Of superior quality and color; always crisp and tender.

Southport Yellow Globe Onion.—Handsome in appearance and large in size.

Early White Box Radish.—One of the very best white turnip Radishes.

Ignotum Tomato. — Very productive; good size; rich color; smooth and solid.

One large packet of each of the above (six varieties in all) sent postpaid, for only 15 cents.

FREE. With every remittance of 15 cents for the above collection, I will mail (if requested) without additional cost, my **New Seed, Plant and Bulb Catalogue,** the gem book of the year, which contains everything good, old or new, at right prices. You need it, no matter if you purchase 10 cents worth or $10.00 worth of seeds and plants. Address

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CHOICEST STRAWBERRIES

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C. N. FLANSBURGH, Leslie, Mich.

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Honey Column.

CITY MARKETS.

PHILADELPHIA.—*Honey.*—No. 1 white, 8; fancy amber, 7; No. 1 amber, 6@6½; fancy dark, 6; No. 1 dark, 5@6; white extracted, 5@6; amber, 5; dark, 4; beeswax, 26. Our honey market is very low with some call, but a big supply. We will not buy or sell on commission any more this season. White-clover extracted always in demand, which we are buying constantly. If you have any, send sample.

WM. A. SELSER,
Feb. 20. No. 10 Vine St., Philadelphia, Pa

DENVER.—*Honey.*—Fancy white, 11; No. 1 white, 10; fancy amber, 9; white extracted, 5@6; beeswax, 25. There is a little better demand for both comb and extracted honey in our market. We are doing all in our power to keep up the quality and price of first-class honey, and to rid the market of any doubtful brands.

R. K. & J. C. FRISBEE,
Feb. 12. Denver, Col.

NEW YORK.—*Honey.*—Fancy white, 11@12; No. 1, white, 10; fancy amber, 9; No. 1 amber, 8@8½; fancy dark, 7; No. 1 dark, 6@6½; white ext., 5@5½; amber, 4½; dark, 3½@4; beeswax, 26@28. There has been a little better demand for comb honey during the past two weeks. Prices, however, will not improve, as the season is about over and plenty of stock lying on the market. We have now a good demand for extracted buckwheat, candied, and bee-keepers having theirs on hand yet should market it now. Beeswax quiet.

HILDRETH BROS. & SEGELKEN,
Feb. 20. 28 & 30 W. Broadway, New York

MINNEAPOLIS.—*Honey.*—Fancy white, 12@13; No. 1 white, 10@12; fancy amber, 9@10; No. 1 amber, 8@9; fancy dark, 7@8; No. 1 dark, 6@7; white extracted, 6@7; Western, 5@6; amber, 5@6; dark, 4@5; beeswax, 22@25. There is no accumulation of comb honey, and this market affords a good outlet for white grades well crated. Extracted quite dull, unchanged.

S. H. HALL & CO.,
Feb. 19. Minneapolis, Minn.

ST. LOUIS.—*Honey.*—Fancy white, 12@13; No. 1 white, 11@11½; fancy amber, 10@10½; No. 1 amber, 9@9½; fancy dark, 8@8½; No. 1 dark, 7@8; white extracted, in cans, 5½@7; amber, in barrels, 4@4½; dark, 3@4, in barrels; beeswax, 23@23½. The demand is light for comb and white extracted honey. Extracted honey—manufacturing stock—in good demand and light supply; sells best in barrels.

WESTCOTT COMMISSION CO.,
Feb. 18. 213 Market St., St. Louis, Mo.

MILWAUKEE.—*Honey.*—Fancy white, 12@14; No. 1 white, 12@13; fancy amber, 10@11; fancy dark, 8@10; white extracted, 6@7; amber, 5@5½; dark, 4@5; beeswax, 26@27. The supply of honey keeps up with the demand, and demands on the supply are moderate. Values are fairly well sustained, and think there are as good prospects for good spring trade as usual. Hope it will so prove.

A. V. BISHOP & CO.,
Feb. 18. Milwaukee, Wis.

COLUMBUS.—*Honey.*—Fancy white, 12½; No. 1 white, 11; fancy amber, 9.

THE COLUMBUS COM. & STORAGE CO.
Feb. 15. 409-413 N. High St, Columbus, O.

CINCINNATI.—*Honey.*—No. 1 white, 12@13; No. 1 amber, 10@12; fancy dark, 8@10; white extracted, 5@6; amber, 4@5; dark, 3½@4; beeswax, 22@25. Demand slow for honey. Demand for beeswax fair.

CHAS F. MUTH & SON,
Feb. 20. Cincinnati, O.

CHICAGO.—*Honey.*—Fancy white, 12; No. 1 white, 10@11; fancy amber, 8@9; No. 1 amber, 7; fancy dark, 7@8; No. 1 dark, 7; white extracted, 5@7; amber, 5@6; dark, 4@5; beeswax, 25@26. Very little demand considering season of year.

R. A. BURNETT & CO.,
Feb. 18. 163 So. Water St., Chicago, Ill.

DETROIT.—*Honey.*—Fancy white, 13@14; No. 1 white, 11@12½; fancy amber, 10@11; No. 1 amber, 9@10; fancy dark, 8@9; white extracted, 5½@6; amber, 5@5½; dark, 4; beeswax, 25@26.

M. H. HUNT,
Feb. 19. Bell Branch, Mich.

BOSTON.—*Honey.*—Fancy white, 13; No. 1, 11@12; white extracted, 7; amber, 5@6; beeswax, 25. The demand for honey of all kinds is light with a full supply. Beeswax is in light supply and wanted.

E. E. BLAKE & CO.,
Feb. 18. 57 Chatham St., Boston, Mass.

KANSAS CITY.—*Honey.*—No. 1 white, 12@13; fancy amber, 11@12; No. 1 amber, 10@11; fancy dark, 9@10; No. 1 dark, 8@10; white extracted, 5½@6; amber, 5@5½; dark, 4@4½; beeswax, 20@25.

C. C. CLEMONS & CO.,
Feb. 19. 423 Walnut, Kansas City, Mo.

FOR SALE.—6000 lbs. extracted honey, in new cans and cases, $350.00. Speak quick; who wants it?

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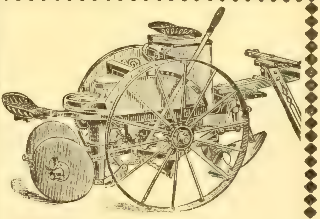

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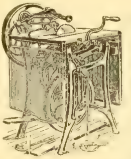

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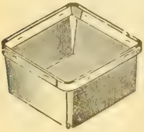

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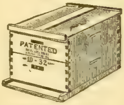

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GLEANINGS IN BEE CULTURE

A Journal Devoted To Bees and Honey and Home Interests.
Illustrated Semi-Monthly
Published by The A. I. Root Co.
$1.00 per Year
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STRAY STRAWS
FROM DR. C. C. MILLER.

Earache. "A drop or two of warm honey will alleviate the pain," says Farm Furrows, in *Homestead.*

I wish friend Aikin would tell us more about the quality of sweet clover if he has some he's sure of. He calls it semi-white. What I have seen is, I think, as white as white clover.

If government should be induced to tackle *Apis dorsata*, I say double the appropriation and first try it fully on its own ground before risking by its introduction the danger of having on our hands another English sparrow.

Honey-cured hams. R. H. Rhodes has them, and says they are superb. Into a barrel ⅝ full of hams under brine he pours a gallon of best alfalfa honey, and after six weeks takes out and smokes. Nothing hard to do in that, surely.

Alfalfa honey is bad about granulating, says R. C. Aikin, p. 115. Isn't it possible that it may be different in different localities, just as it is amber in some places, although generally white. Its very mild flavor will always recommend it with many.

"When there are different *kinds* and *fields* of bloom at the same time, bees of different colonies will be working in different fields."—*R. C. Aikin.* p. 116. In corroboration I may say that, one year, two colonies stored white honey for me when all others in same apiary stored dark.

When riding any distance on a very cold day, do not fail to have plenty of wraps for the knees. If convenient, place a lantern under the robe, and see that it has air enough so that it will not go out. You will be surprised to know the amount of heat a lantern will give.—*Homestead.*

The *Revue Internationale* copies the article of F. Greiner, in Gleanings, as to the age when bees may commence field work, and remarks, "While very young bees may become field workers for lack of older ones, and while old bees may build combs and feed brood in the absence of young bees, yet the bee-keeper does ill not to take into account the natural law of the proper division of labor."

R. C. Aikin had good work in a good season with only two separators in a super, but it wouldn't work other years. He says, "The past 20 years I have been through all sorts of seasons, from one that did not give winter stores to an average of 227 pounds per colony, and I know that strong colonies and full-separatored supers are the things for good section honey.—*Progressive.*

The opinion prevailed at the late Chicago convention that, when a bee-keeper gets 22c for comb, he can produce extracted of same grade for 10, 11, or 12½ cents. Doolittle rips that to pieces in *A. B. J.* by saying he can get only one-quarter more extracted than comb *of same grade;* for to be of same grade it must be all sealed, so he must have 17.6 cents for the extracted.

"A Reader" springs the question in *American Bee Journal* whether with *Apis dorsata* we should not be helpless against production of drones with worker and drone-cells all the same size. He says, "We have just been priding ourselves that we had overcome that drone business by the use of full sheets of foundation. Now we don't want to fall clear downstairs after climbing so high."

Somnambulist says in *Progressive*, "Had you noticed that Dr. Miller unwarily but openly declared that 'all his experience lay in a jug?' Here's a job for A. I. R." Sommy keeps clear of the law by not *saying* that something stronger than vinegar was in the jug; but you can see the *spirit* in him, no matter what may have been in the jug. I don't get that jug to sour very rapidly, but I've soured on you, Sommy.

Mr. Editor, you seem to have the impression that the nails I use for end-spacing are driven diagonally. I hardly see how an exact job can be made in that way. If you look close you'll see that they are driven in perpendicularly their full length, then bent to place. [Yes, I had the impression that you used the diagonal nails; but I now recall that they were as you state on the frame that you sent here.—ED.]

"I WANT THE FRAMES to stick together some," says ye editor, p. 128. All right, have 'em stick to your heart's content, but remember that others, and possibly a majority, are still more emphatic in the wish that they should *not* stick. [I suspect that you do not get exactly the right idea of the little word "some." I did not mean *much* sticking, but just enough to hold the frames together without rattling while the hive is carried across the apiary. I doubt whether the majority who, when they have tested the style of frames shown on page 94, will desire to dispense with the slight sticking between the end-bars altogether.—ED.]

IF I UNDERSTAND you correctly, Mr. Editor, side walls of cells ⅜ deep and .008 thick will be reduced to natural thickness by the bees. Now, do you know this to be the case during a flood of honey? [Yes, you understood me correctly. I based my statement on numerous measurements made by Mr. Weed. There may be a difference in some cases. As soon as deep-cell foundation is given to the bees, they begin immediately to thin down the walls to the natural thickness. The cells are so near natural, and as honey is coming in, the bees naturally conclude that it is so little work to fix up this comb they will commence on it before any thing else.—ED.]

SUGAR is forbidden by the medical profession in diabetic cases. A correspondent asks if honey is equally proscribed. I think generally; but isn't it possible that the proscription comes from carelessly ignoring the essential difference between cane sugar and honey? Mr. Editor, can't you get a verdict from competent, conscientious medical authority that's fully up to date? [We have a good many physicians among our subscribers, and we should be glad to hear from one or more on this point. As for my own case, I know that I can not eat cane or maple sugar, without trouble; but I have partaken of honey quite freely, with no disagreeable effects. Prof. Cook is certainly right, if my case means any thing, that the bees do digest or prepare nectar so that it shall be more readily assimilated. Perhaps "digest" is not just the word; but the bees do *something*, and that *something* makes it "set" better with me.—ED.]

WHAT A. I. ROOT SAYS, p. 131, reminds me that formerly physicians sent patients with weak lungs to some points in the West, with great results, while they don't get any such results from the climate nowadays. Formerly they were weeks on the way in open wagons, now they're shot there in a stuffy car. [Are you sure, doctor, that patients with lung complaints do not get benefit nowadays by a change of climate? A stuffy car may have something to do with it; but as their duration there is so *very* short (shot through space) it seems to me it would make but little difference either way. But if I had consumption I would stay at home and go on the beef diet. I have seen it work admirably in cases right under my observation, so I have unbounded faith in it, provided the patient does not wait too long. It will cure nearly every thing *providing* the patient has grit—that is, self denial—and does as *he is told*.

GENERAL CORRESPONDENCE

DRAWN COMBS.

HOW THEY HINDER OR PREVENT SWARMING; HOW THEY ADD ONE-THIRD TO THE CROP; A VALUABLE ARTICLE.

By J. E. Henderson.

I am very much interested in the subject of drawn combs that is being discussed in GLEANINGS; and as the editor calls on others to write I will give some of my experience.

I have been using drawn combs for over 15 years, and I would just as soon think of doing without them as I would think of doing without bed-clothes on a cold night. They are the most valuable property a bee-keeper can have. I am like the editor—I have tested this matter of drawn combs very carefully, not only in my own apiary, but in some of the leading and largest apiaries of other apiarists; and I find from experience that bees will invariably take to the drawn combs first, then to full starters next. As yet I have never leveled down, but will give it a test this season.

I find there are several advantages in using drawn combs. The bees will commence sooner and finish sooner; and by their use the bees are not so prone to leave the case on cool nights, which is quite an item. I always place four drawn combs in the center of each case as a nest-egg, and I find these combs just as fancy as those drawn from foundation.

On page 79, J. E. Crane says if they are not cut down the bees hesitate about sealing them, and are apt to be dirty in appearance. The brother's bees up there act differently from mine. I find my bees work on sections of full depth, and seal over much sooner than from sections of full starters of foundation. If drawn combs have had the proper care in the fall and winter, I should much rather have them than foundation. I don't think these combs are appreciated by bee-keepers to the full extent of their value. I also find, when cases are supplied with drawn combs, and bees once fairly at work in them, it lessens the desire to swarm when put on eight or ten days before white clover comes in bloom.

By the use of drawn combs it will make a difference of a third of a crop more in their favor, even in a poor year. In 1892 I took two hives of bees, as nearly alike as two peas. One I supplied with drawn combs the whole season through, and the other with full starters of foundation comb. The one supplied with drawn combs gave a surplus of 162 lbs. of fancy honey; the one supplied with foundation gave a surplus of 120 lbs., and not any more fancy than the first one. It was all from white clover.

I have been experimenting in this line for quite a number of years, with good results. For this reason I am in favor of drawn combs. I also find that, with drawn combs on during a poor year, I can get nice sections of honey when they would not even draw out foundation. I don't doubt in the least that the day is not far distant when we all shall be using drawn combs made by machinery.

Elm Grove, W. Va.

[The article above sets forth from a practical standpoint all or nearly all the advantages that I suggested might accrue, from a theoretical standpoint, as set forth in my convention paper read at Lincoln. That drawn comb will hinder swarming, can hardly be doubted. In all our experience we never had any trouble in preventing natural increase when we gave the bees plenty of empty extracting-combs; and the same must hold true with the drawn combs and sections, to a very great extent.—ED.]

COMB FOUNDATION AND DRAWN COMB.

FISHBONE IN ORDINARY FOUNDATION; USING THE BUCKWHEAT SEASON TO SECURE DRAWN COMBS IN SECTIONS; GOOD SUGGESTIONS.

By F. Greiner.

The value of comb in producing honey, both extracted and in the comb, has long been well understood; and it seems all ought to agree pretty well on the subject, at least now, after all that has been said of late. I am not going to offer any evidence to prove how much more honey may be produced by the use of ready comb, as it is generally conceded the gain will more than pay the cost; but I may offer some suggestions as to how to secure the comb.

The producer of extracted honey, of course, has no trouble in obtaining all the comb he may need in a short time; and, once in possession, he is well fixed. It is far different with the comb-honey producer; his combs are sold with the honey, and a new supply must be looked for every year. Fortunately we are not situated as are our German honey-producers. After setting forth the advantages of our little pound sections to them, Vogel, the German, made the following reply to me: "Our honey seasons are not to be compared with yours in America. Of this I am sure. It would take us one year to have the comb built in such sections; another year to have them filled and finished." When the use of comb foundation was suggested, Vogel again replied: "To secure comb honey, which will attract and satisfy *our* buyers, the comb will necessarily have to be built from the very start by the bees; comb foundation is not wanted."

I myself have not yet learned "to chew" even chewing gum; and I still object to the fishbone found in comb honey built on foundation; but with our American consumers of comb honey it seems to be different. Evidently they chew and like it, and the fishbone meets with their approval.

It may be said here, that a good grade of comb foundation could not be detected in the finished product; but of this I am not so sure—at least, I have so far been seeking in vain for such undetectable comb foundation. At our last convention of the Ontario, N. Y., bee-keepers, the question of foundation in comb honey came up, and, to my great surprise, not one of the Ontario Co. comb-honey producers present had ever used or gotten hold of that "good grade" of comb foundation. One friend from an adjoining county, I will call him B, as I wish to refer to him again later on, said that he was pretty sure no such undetectable good grade of comb foundation was offered for sale, but that he had made and used such himself, and he also offered samples, which I shall test the coming season. Be that as it may, the majority of our bee-keepers had found that it paid them well to use comb foundation such as they could obtain; and since the honey-consumers do not object to use of it, if they don't object I may offer suggestions as to "how to have the foundation drawn out previous to the honey season." I must, however, first cite another saying of our friend B, above mentioned—a saying which suggested to me the idea I wish to bring out. He said: "Buckwheat honey is and has been a curse to bee-keepers." Why? "The inferior article has lowered the price of honey more than any thing else."

Now, this may be true; and while I am pondering over it the thought strikes me, "Why not use the buckwheat honey-flow for the purpose of drawing out section foundation, to have ready for the next season, thus not only relieving the market of at least a part of the inferior product, but also making our chances for a crop of a fine grade of honey the next year all the better?" Now, this is not mere conjecture. I have had quite a little foundation drawn in this way, although not exactly for use in sections. The plan will work well, I am quite sure. It would be well to have the supers, in which comb-building is to go on, protected during this time, as the nights are often quite cold. It will also be found a good plan not to allow too much room, so the foundation may be drawn out *evenly all over the frame.*

Except when the brood-nest is greatly contracted, six half-story frames may be quite enough. The frames may be removed as fast as the foundation is sufficiently drawn out, and replaced by others. Should any honey have been deposited in the combs, this could easily be removed either with the extractor, or, better, by a careful exposure in the bee-yard. One colony worked in this fashion might easily furnish enough comb to fill a dozen section supers or more, depending altogether on the honey-flow; and, further, we might continue the procedure by feeding, or, where no buckwheat is grown, feeding might be substituted.

A bee-keeping friend, located within a few miles of me, follows a similar plan to obtain comb. He sets apart his best comb-building colonies for the purpose, and during the time just previous to his expected honey-flow he feeds and thus gets his foundation drawn in half-depth frames. When drawn, the comb is cut out and fitted into the sections in such a manner as to leave a small passage-hole in each of the four corners of each section, etc.

I hope some of the readers of GLEANINGS will test these plans the coming season, and report their success.

Of course, when the perfect comb becomes a fact, comb made by machinery, so light that it can not be detected in the honey afterward, and also sold reasonably cheap, then we need not trouble ourselves any more to obtain it by feeding or otherwise. All will depend on what will be the cheapest way to attain the same or the best result.

Naples, N. Y., Feb. 6.

[I had not thought of it before, but I do believe that American consumers, so far from disliking the so-called fishbone, as a resultant from the use of foundation in sections, actually do like it. It gives them something to chew. The fact of the matter is, I suppose, the average consumer does not know how honey in natural combs does taste. If he ate the honey of his fathers, he has forgotten how it chewed; and as practically all comb honey of *to-day* on the market is built from foundation, the consumers do not know that there is any difference between comb honey from foundation and that which was made without. But this is true: The fishbone is just so much waste, and somebody has to pay for it. We have made foundation with no side walls whatever—just the mere rectangular bases united together, and we have also made foundation with very little side wall. While it is perfectly practical to make both of these articles, they have given dissatisfaction to bee keepers, owing to the fact that they would sag or stretch in the hive; we are, therefore, aiming in the new product—that is, the new deep-cell-wall foundation — to make an article that will not sag — the ability to resist stretching being due to the deep cells rather than to heavy side walls or thick bases.—ED.]

If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.

HOW I RAISE AND SELL EXTRACTED HONEY.

VALUABLE TRADE SECRETS FROM A VETERAN AT THE BUSINESS.

By Chalon Fowls.

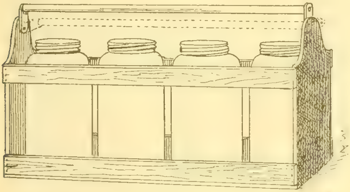
When I first began raising extracted honey, fifteen or sixteen years ago, I could not sell a hundred pounds a year in my home market; now it takes from one and a half to two tons of honey a year to supply my home market, and my trade is constantly increasing. My success in building up a home market is due, I think, to my methods, which are as follows:

First the keynote of success in selling honey is to have a first-class article to sell. As nearly all the honey raised in my locality is gathered from basswood and clover, it follows that I shall have the finest-flavored and whitest honey in the market, if only the most cleanly methods are employed from the time the nectar is gathered until it reaches the market, just as a like result is obtained by the cleanest and most improved methods in the gathering and handling of maple sap. An examination of the bee under a microscope shows that it is one of the most cleanly as well as the most beautiful of insects, which insures cleanliness in the gathering process (I'm afraid the maple-sap gatherers would hardly bear comparison here). When the bee gets home with its load it must deposit it in a clean receptacle; old combs will not do, neither must the queen be allowed access to the surplus combs, as eggs, larvæ, and pollen result in dirty combs; therefore the queen is confined in the brood-chamber by means of perforated zinc.

The honey is not taken from the hive and extracted until it is sealed up just like section honey. It is then extracted, and stored in nice tin cans holding about 75 lbs. It will all candy solid, and is liquefied only as wanted for market. When I want to put up some for market I put one of the cans in a larger can, supported by a suitable frame, so as to leave room under and all around, to be filled with water. The whole thing is kept hot several hours on the stove (a gasoline-stove is the best because slower); but I do not want the water to boil at any time in the outside can. After it is perfectly liquefied it is put into my filling-can, which is provided with a gate. Then I am ready to fill small packages for market.

I use only flint-glass pint Mason jars and third-pint jelly tumblers for the grocery trade. I never use the green glass when I can get the flint, as the honey does not show up nearly as well. Grocers are requested to place the honey in front somewhere, or on the counter, where the light will strike through it. When a customer sees it shimmering in the sun, as clear as crystal, he is attracted by its beauty, and will buy. I want no showy-colored labels on *my honey.* I leave that for the glucose-mixers. They want something to plaster over their vile stuff *to hide it*, while I want to show my honey, as it looks finer to a honey-lover than the finest work of art on a label. Lithographs are so common nowadays that people take little notice of them; but any choice article of food, put up in *clean* and *attractive* packages, always commands attention; therefore I use only a small white label, 1 by 2 inches, giving my name and address, and the words "Pure Honey." We might get a pointer here from the druggists, who are apt to display clear and sparkling liquids in the window.

I make a tour of the principal towns in my county every two months or oftener, according to the demands of the trade; and if any of the stock left is beginning to candy, or has become unsightly in any way, it is replaced with fresh goods free of charge. However, this very seldom happens—almost never—except in the case of some little stock that is carried over the summer.



FOWLS' HONEY-PEDDLING CASE.

I consider it to my interest that the grocer who handles my honey shall make a good profit —20 to 30 per cent is none too much on small packages. They should be classed as "fancy groceries," and should bring a better profit than honey in bulk, or sugar and flour. In this way I secure the hearty co-operation of the grocer, which would not be the case if his profits were small.

I sell pint Mason jars at $2.75 per doz., $30.00 per gross; third-pints, $1.10 per doz.; per gross, $12.00. Pints run about 19 lbs. to the doz.; third-pints, about 6. Pints retail for 30 cts. each; third-pints from 12 to 15 cts. each, according to circumstances. But it will be argued, these prices are too high, and honey will not be used largely if these prices prevail. I answer that this is for a fancy article in small packages. Do not choice red raspberries in pint boxes sell high? and yet good fruit can be bought cheap in larger quantities, and larger quantities are used too. Almost any grocer will sell on smaller margin in bulk by the crockful or pailful, as the large packages need no display, and the profit on the large package is as much as on the little one.

I believe bee-keepers ought to push the local trade more. Much might be done by advertising in one way or another. I would suggest, Mr. Editor, that you get up some notices printed in large letters on cards, say 12 by 20 inches, to hang in stores. They might run something like this:

FOWLS' PURE HONEY FOR SALE HERE.

DON'T BUY IMITATIONS.

See that Fowls' name is on the package.

Or if a larger amount of matter is wanted, something like this might do:

FOWLS' PURE HONEY FOR SALE HERE.

Notice to Consumers.—Pure honey is the most healthful sweet known. Many of our modern diseases are traceable to the excessive use of cane sugars. Honey is more easily assimilated in the human stomach. This is the decision of eminent physicians. But honey, to be healthful, must be pure. Honey compounds are *not* healthful, and are *not cheaper.* Consumers should realize that honey that is 100 per cent pure is cheaper as well as more wholesome than a compound that only *claims* to be 50 per cent pure, even if the pure article sold for double the price of the spurious. Our pure-food laws are for our protection, and require that a formula be printed on all mixed goods.

I sell the most of the honey sold in bulk in my own town, and I find but comparatively few will buy in bulk, although the price is much cheaper. By far the larger number want only a pint or less at a time. Of course, I do not undersell the grocers on the same size of packages they handle. In soliciting orders from boarding-house keepers and families I prefer to take along my samples in flint-glass Mason jars, and I carry them in a sample case which allows the light to strike through, just as in the grocery. Even amber honey from fall flowers looks fine if I can get the jars between my customers and the sun; and once people begin to admire its beauty, it's not difficult to get them to taste, which sometimes goes a long way toward making a sale. As I never allow any but my best honey to go in to the grocery trade I have to work off all my off grades to families, boarding-houses, and bakeries. The dark and strong kinds, if I have any, are used for cooking, and recipes are given away with the honey, some of which I have taken from the book "Honey as Food," advertised by the *American Bee Journal*, and some that are original with me. I have used type-written copies of recipes, but find this too much trouble, and think now I should like some printed leaflets with a few good recipes, and some extracts from Prof. Cook's article on honey as food, which appeared in the *American Bee Journal* some time ago. The reason I do not want to use the book "Honey as Food" to give to my customers is that I have found by trying that some of the recipes are worthless, and I am afraid they might try one of that kind the very first one, and then chuck the book into the stove in disgust, without testing the honey for cooking any more. I inclose some of my recipes, that you are at liberty to publish if you wish. Those published in GLEANINGS are good, I know, because I tried them last winter.

It's a pleasure to know that the editor is honest and conscientious just at this time, when the politicians are stirring up strife and trying to make all the people think evil of their neighbors. The kind of honesty that thinketh no evil is quite refreshing; and so our good editor, in publishing the recipes, gave credit to the journal in which he found them, and generously added a free puff. I suppose he never "thunk" that the whole list had been purloined from the book "Honey as Food;" and the editor of the *American Bee Journal*, not to be outdone, published the same list, advertising his book, "Honey as Food," in the same column, and returned thanks for the use of his own property, and added a free puff too.

Oberlin, Ohio.

[The article above came before our honey-leaflet was gotten out. In fact, this leaflet came as the result of a suggestion from friend Fowls and one or two others.

In addition to the leaflets, it might be a good idea to have on sale cards after the style of the notice above. A neat tasty card setting forth very briefly why honey should be eaten might be read in some cases while the leaflet itself would not be read at all.—ED.]

GRAND VALLEY, COL., AS A HONEY LOCALITY.

ALSO SOMETHING ABOUT SLEEPING OUTDOORS.

By M. A. Gill.

Mr. Root:—While reading your description of Salt River Valley, Ariz., I thought perhaps a few jottings from the Grand Valley in Colorado would not come amiss to the readers of GLEANINGS. First, I will say that last spring I was appointed bee-inspector for Mesa County, which gave me a good opportunity to see the resources of this valley. Your speaking of the large apiaries kept in one place in the Salt River Valley brings to my mind that I inspected nearly 600 colonies (on Mesa Creek, this county) in a scope of country not to exceed two by three miles, and only about a third of that area was in alfalfa; and right in the heart of this section I remember one apiary of 64 colonies where over 40 of them had five supers each of comb honey on them when I visited them. That night I stayed with Mr. J. P. Utterback, who has 200 colonies dovoted to comb honey. You know nearly every one in this mountain region has a pack outfit (as they term it), which includes a bed. Well, after being shown the cozy spare bed in the house I noticed my friend bring out his mountain-bed and spread it on a forkful of alfalfa hay in front of the carriage-house.

"Now," said he, "if you wish you can sleep here with me."

It was during dog-days in August, at about 9 o'clock. The cool mountain air seemed to settle down the mountain sides, and lift the heated air of the valley out; and, oh! the matchless delight of drinking that pure fresh ozone is simply beyond description. It is certainly inspiring, and I imagined it was a little intoxicating.

Like you, I don't wonder these people are healthy; and, again, I *do* wonder that there are not more people whose lungs break down in the East, who sleep with their bed-rooms sealed up like a fruit-can.

You spoke of sleeping out on the ground on Dec. 29th. Well, I slept out that night too; but we had to scrape away about four inches of snow to spread our bed down. We slept well, took no cold, and why should we? Don't the doctors say that there is only one remedy that *always* agrees with every one, and that is pure ozone? I didn't have quail on toast, as you did, the next day, but I had a fine venison hanging up by 9 A. M.

You speak of some of the alfalfa honey being almost equal to the white-clover honey of the East. Didn't the committee at the St. Joseph convention decide that the first quality of alfalfa honey from the arid regions was the best in the United States? Are not you eastern fellows getting a little afraid of the quantity and quality of our honey when you put clover, willow-herb, etc., 1 cent per pound above our best alfalfa? Did it ever occur to you that we can outweigh you nearly one pound per gallon with our best alfalfa honey?

This county (Mesa) has about 4000 colonies of bees. I personally examined 3100 colonies last season. I destroyed by fire between 50 and 60, besides burning over 100 infected hives and other fixtures. I also drove quite a number of colonies back into their own hives after first saturating the inside of hive with coal oil, then burning it to a char, and giving them only V-shaped top-bars for starters.

That the honey they carry with them is digested before they can build comb and store it is proven, I think, by the fact that of all the colonies so treated only two showed signs of the return of the disease this fall. I will say I have again been appointed as inspector for the coming year, and will report to you later as to my success in stamping out the disease in this valley.

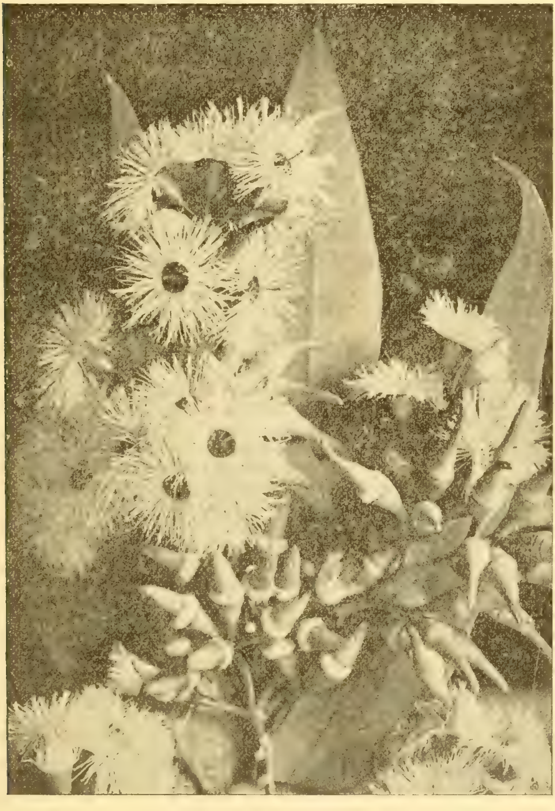
Grand Junction, Colo., Jan. 28

[Amen to your remarks about sleeping outdoors, friend G. In regard to the alfalfa honey, I have just consulted Mr. Calvert, and he says the alfalfa honey that was put a cent below willow-herb, etc., was not first-class. He says we always rank nice pure alfalfa honey fully as high as clover, willow-herb, or any other, unless it should be the water-white mountain-sage honey that never candies, even if exposed to a zero temperature. A good deal of the alfalfa sent us has evidently been gathered when the bees were working on something else. I am glad to know of the heroic measures your people have been taking to stamp out foul brood. Permit me to say in this connection, that, so far as I can learn, foul brood has never as yet made its appearance in Salt River Valley; and I exhorted the friends there to be very careful that it never *did* by any hook or crook get a foothold.—A. I. R.]

THE AUSTRALIAN BLUE-GUM, OR EUCALYPTUS-TREE, IN CALIFORNIA.

By J. H. Martin.

The above-named tree is attracting much attention on this coast as a means of increasing the honey-producing flora. The species commonly known as blue-gum was first introduced; and, though extensively planted for wood and windbreaks, it is not an attractive tree, for its habit is of the order of a bean-pole—very tall. This species has a small flower and a profuse bloom, commencing in November, and continuing well through the winter. The honey from the blue-gum (*E. Globulus*) has an amber hue and an acrid flavor, and its only favorable feature is its value in medicinal use. There are about 150 varieties of the eucalyptus-tree. Some are noted for their variety of uses—for timber, firewood, and shade, as well as honey-production.



EUCALYPTUS CORNUTA.

Under the general name of sugar-gum are several beautiful trees having a branching form, long drooping leaves, and large beautiful flowers in profusion, and possessing interesting features. The tree derives its name, eucalyptus, from the peculiarity of the flower bud—*eu*, good; *calypto*, to cover. The bud before it opens is protected by a cover. These covers are of great variety and size, and for the most part give names to the trees. In some varieties the cover is a mere disk which drops off when the blossom opens. In others the cover takes the shape of a cone, as in *E. Cornuta.* The photograph that accompanies this description was taken from the blossom of *E. Cornuta*, and shows blossom in the various stages of development. The closed bud has the appearance of a double cone. A little further along the upper cone is crowded off somewhat, showing the white filaments of the blossom ready to burst from their prison. They soon do burst forth in beauty, and the brown cone drops to the ground. The calyx develops into a hard hollowed cup; and in the early morning this cup is full of nectar, and a shake of the tree will cause a shower of nectar to descend.

This species of tree is very profuse in blossoms, blossoming several times annually, and it is an inspiring sight to a bee-keeper to see the bees scrambling over each other after the abundant sweets. I think the honey from this variety of gum is not so strong as that obtained from the blue gum. This tree is being largely planted at present, and in a few years we predict a marked improvement in honey-production, especially near our large towns. Nearly all species of the gum family are of rapid growth, and their chief season of bloom is during the winter months. As before stated, the blossoms are in great variety, size, and color. The general color is a creamy white; then there are others of a scarlet hue. The latter is named *E. Ficafolia* and has the reputation of producing a honey that kills every bee that partakes of it. This charge is, however, not substantiated by good authority. The evidence is merely hearsay, and needs further investigation before we give it credence.

Bee-keepers in California should interest themselves more in the planting of honey-producing trees. Mr. N. Levering, of this city, is advocating the establishment of an arbor day by legislative enactment, just as they have already done in many Eastern States. An arbor day would be of benefit in this State, where so many wide areas are devoid of trees or even bushes. Let us plant trees, and extend our honey pasturage. Remember that the man who plants a tree causes unborn generations to rise up and bless his name.

[The eucalyptus has been spoken of many times, and very favorably, in our columns, for years back; but this is the first time we have shown a picture of the tree itself.—ED.]

ALFALFA IN ARIZONA.

CONDITIONS NECESSARY FOR HONEY SECRETION; THE AMOUNT OF IRRIGATION NECESSARY; HATCH'S 70,000 LBS. OF ALFALFA HONEY.

By C. A. Hatch.

This is *the* honey-plant of the Salt River Valley, where most of the honey produced in the Territory comes from, and is not only a grand honey-plant but the king of forage-plants. Here in this warm country it can, with plenty of water, be mown as many as five times in a year, yielding at a single cutting from one to two tons per acre. The usual method is to mow twice, and pasture or grow seed the other crops.

The first crop, which is usually cut the last of May or first of June, does not afford much honey, although the bloom is seemingly more profuse then than on later crops. It seems to be necessary for honey secretion that the bloom should be old, the same as in white clover, basswood, and perhaps other plants. The fields left for seed are the ones in which bees truly revel, the flow being, when conditions are right, equal to the best clover, and lasting much longer; in fact, during the last year, with an exception of about two weeks, caused by rains, there would have been a continual flow from June 15 until Oct. 1, if insects had not destroyed the bloom.

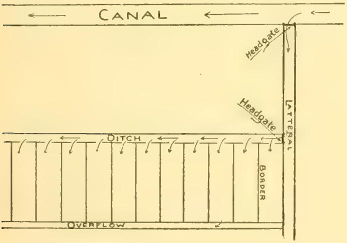
It has two insect-enemies—a small three-cornered bug, green in color, and a yellow butterfly about the size of the cabbage-moth. The bug feeds on the leaves and blossoms, but I could never see that the butterfly did any thing more than suck out the honey from the blossoms left by the bugs, but presume it must feed, in the larval stage, on the roots or something near by. This season there were so many of them that it gave alfalfa-fields a golden hue, and the whole field seemed to be alive. I am sure I could have secured another 10,000 lbs. of honey this season if it had not been cut off by these two pests. The entomologist who will discover some practical remedy for them will confer a great favor on bee-keepers of Arizona.

The manner of preparing the alfalfa-fields for the crop may be of interest to your readers. First it is well to remember that it is a strong grower and rank feeder, and requires a large amount of water for its development—almost twice as much as for any other crop—and is essentially an irrigation plant. It may grow, and even be profitable, without irrigation; but to bring it to the highest development, water so arranged that it can be given at any time is essential.

This whole valley (Salt River) has quite a uniform slope in one direction, of from 12 to 18 feet per mile, and seems to be especially arranged for irrigation. There are two plans of irrigation used here—"flooding," in which the water is allowed to flow over the whole surface; and "trenching," in which it is allowed to flow only in trenches, cut for the purpose, around the plants or trees to be irrigated. Flooding is used for alfalfa, barley, wheat, or any sown crop; and the other system, for fruit-trees, vegetables, strawberries, corn, etc.

Water is brought in broad ditches called canals, but these seem too small to an Eastern man to merit the name, sometimes coming 30 miles before any of the water is used. When the arable land is reached, these canals are tapped by smaller ditches called "laterals," which carry the water to the farms, where they are in turn tapped by an opening under a lock and key, which is under control of a public officer called "zanjero" (pronounced *zankero*), whose duty it is to open and close the head gate, and see that every man is getting no more than his share of water. The flow through the head gate is regulated according to the number of inches the land-owner has paid for, the price being so much per square inch; that is, what water will flow through an inch opening under a 5-inch head. One inch is counted great plenty for an acre of alfalfa. The purchase of an inch of water entitles the owner to the use of that amount any time when the water is "on" in the canal, unless there be a general shortage; then he can get only his pro rata. In times of shortage the matter is arranged by allowing the water to run in a canal only part of the time, and allowed to accumulate or go into another canal the rest of the time. This arrangement gives each man his full flow when the water is "on."

In order to "flood" a piece of land perfectly it is self-evident that it must be nearly or quite level one way at least, and free from all inequalities of surface; otherwise, where water is left to seek its level, and soak in, some places would get too much and others not enough. So the would-be alfalfa grower must therefore smooth his land and see that the slope is uniform one way only, and that there be no inequalities in the surface. All this is done by the use of a tool called a leveler, drawn by two horses, and then the field is divided into lands about two rods wide, having a slight ridge at each side called the "borders," which are thrown up by a V-shaped tool drawn by a team along the line, and are to confine the water to the land. The dirt must be moved for some distance, for the "border," otherwise a trench would be on each side, which would draw all the water. The accompanying diagram may make the "ditch," "lateral, and "border," plainer.



Water is usually turned on once after each cutting of alfalfa; and, if well done, is sufficient for that crop. The whole field is not watered at once, but only so much as the head of water will cover, and then other lands are taken in succession. The opening from the ditch into each land is called a tappoon, and may be a wooden box with a tight-fitting slide, or only a piece of the bank removed, to be again filled when no longer needed.

The alfalfa-fields in this part of Arizona are fully stocked with bees, and in some neighborhoods overstocked. The crop last year shipped through the Bee-keepers' Association at Phœnix amounted to somewhere about 13 carloads, of which your humble servant had the good fortune to furnish over three carloads, or 70,000 pounds.

If any one desires to locate in this country there are plenty of chances to buy bees with the location, which would be the only way advisable.

Pasadena, Cal.

NOTES ON GLEANINGS FOR JANUARY 15.

OVER 400 CARS OF HONEY FROM A SINGLE STATE.

By W. A. H. Gilstrap.

In Straws I see Wisconsin reported with 1,800,000 lbs. of honey, or 75 carloads, at 12 tons to the car. Yes, Mr. Editor, John H. Martin put the California crop of 1895 at over 400 cars—about 425, I think. Last year I doubt whether we produced 50 carloads. But if any other State can knock our average out, let's have a show of hands. I think we are likely to put up some large figures in extracted honey this year.

LIGHT-WEIGHT SECTIONS.

Go for the editor, Dr. Miller. In this country merchants usually call a 4¼x4¼x1½ section a pound, and I believe consumers generally believe them. He, therefore, *cheats* the consumer, and I more than half believe the producer who sells the honey by avoirdupois weight—16 oz. to the pound—is *a party to the crime.* An old peddler by me talks in favor of light weight, as he says it means "more money for less honey." That's "business."

GRADING.

I never heard of a half-crop of honey in this valley, that was *actually* water-white or that had sections *actually* unsoiled by bees. I hope grading-rules will not be among the impossibilities next season.

DEFUNCT BEE-JOURNALS.

Tell Dr. Miller to add to his list *The Western Apiarian*, published at Placerville, Cal., 1889-'90, and *The California Bee-keeper* (San Francisco, I think), soon after the *Apiarian* died. It lived but a short time. Mr. Israel once wrote to GLEANINGS that California bee-papers thrived until he wrote for them, and in a short time they died. I think his latest *nom de plume* is Skylark.

ALFALFA FOR HONEY.

Once Mr. Ball, of Nevada, gave an estimate on the amount of honey obtainable from a stated amount of alfalfa, and I thought he was imposing on the editor of GLEANINGS with something too big to be true. Since that I have learned alfalfa is very cranky as a honey-producer, and I can believe almost any thing. Mr. Aikin mentions some alfalfa traits which he would not find here. Alfalfa usually produces more honey here in rather dry localities. Where enough water is found to make the plant very rank it is not apt to yield much honey. Most farmers in this valley cut the early crop of alfalfa usually in May, to get the fox-tail (a troublesome grass) before it fully matures. This cutting is when it is not fully in bloom, or, at least, not producing much honey. Later crops are generally left until they bloom freely and produce considerable honey before they are cut. When left for seed it is the "boss" for honey.

Last year my bees made a light run at the start. Too much electricity in the air checked honey secretion, I thought. Some light showers also made trouble. Then millions of small yellow butterflies helped empty the flowers. It is not rare for alfalfa honey to fail after Aug. 1st to 15th, in some localities.

Hanford, Cal.

[Over 400 cars of honey from a single State of this great Union! If I am correct, no other State has produced even half this amount in a single season of *any year*. These 400 cars and over, I suppose, do not take account of the quantities of honey produced in the same State, that are consumed locally. The government reports put North Carolina in the lead, and California near the end of the long list of honey-producing States. North Carolina should be near the foot. This only goes to show how grossly inaccurate government honey statistics are.

Tell the doctor to fire away; for, come to find out, we have not been shooting at *each other*, but in nearly the same direction.—ED.]

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

BEE-PARALYSIS

Question. — Are you still of the same opinion regarding bee-paralysis that you were when you wrote what is found on pp. 536, '7, GLEANINGS for 1896? I see that there are very many who differ with you in their views in this matter; and I thought it possible that you might have seen something, since you wrote that article, to convince you that queens do carry the disease.

Answer.—In reply to the above I will say that I have seen nothing to change my mind in the least from what it was when I wrote the matter referred to. The colony I spoke of as having the queen from the colony which nearly died with bee-paralysis the year before, made about 100 lbs. of nice section honey; while her colony and the one on the old stand (the colony swarmed), having the young queen, went into winter quarters in fine condition. The one having the disease when I wrote (the worst I had ever seen at that time) gradually recovered, so that, by the middle of September, no affected bees were to be found in or about the hive; so, unless it should break out again, my apiary is free from the disease. No one thing that I ever wrote ever brought me so many letters of censure as did that answer to the question on bee-paralysis, many apparently thinking that I really favored the shipping of queens from colonies that were known to have the disease. Some of these letters were very unfair, to say the least, and nearly every one wrote from a mistaken standpoint. When I write or speak of things I must give them as *I* find them, not from the standpoint of somebody else. All know that no one has proclaimed *caution* to a greater degree than has Doolittle, along all lines where caution is necessary; and I can not understand how any one could have construed any part of what I wrote regarding bee-paralysis to mean that I thought it would be safe for myself or any one else to be heedless or careless in the matter, or use queens from such colonies, for aught but experimental purposes. What I was aiming at was the headstrong way that many had in insisting that, the moment any signs of bee-paralysis were seen, the colony so showing should be eradicated from the apiary, and wiped off the face of the earth, by each and every one who saw those signs. If any person has not the time nor the disposition for a *thorough* and *careful* study of these matters, then such advice is well; but to so press matters that *no* one, no matter how careful, could look into this matter of bee-paralysis because he or she might be a queen-breeder, savored of keeping us in ignorance in the matter till the disease might so progress as to ruin our pursuit. I quite agree with the editor of this journal, that it is better to take a road a good way off from a precipice in our general driving; but if no one ever goes and carefully looks over, how can it be known that there is any precipice within a thousand miles? Neither do I believe it right for the masses to rush into a house having a case of smallpox; but that is not saying that *no* one should go into such a house, leaving its occupants to live or die as best they might, for fear some careless nurse might carry the disease to others. If you must be so careless that you are liable to spread foul brood, bee-paralysis, or any thing else, abroad, should a case of the same occur in your apiary, then by all means cremate any colony in which you find any signs of a dangerous disease; but if you can be a thorough, careful investigator, thus shedding light regarding something yet unsolved about our beloved pursuit, then go at it like a man, and don't be frightened for fear some one may score you if you stand for the right. *Don't* follow Doolittle, Root, Hutchinson, or anybody else, *blindly*, either, because they advocate something you are not familiar with; but investigate, experiment, and observe, until you *know* you are right, then go ahead, no matter what the masses may say or do.

In the world's broad field of battle,
  In the bivouac of life,
Be not like dumb driven cattle—
  Be a hero in the strife.

STORES FOR WINTERING.

Question.—In some of your writings I see that you think it does not require as much stores for wintering bees in the South as it does in extreme northern localites. What do you mean by this? Don't you think the bees will consume as much honey in the South from the middle of October to the middle of April as they would at the extreme North?

Answer.—Answering the last question first, I would say that I should estimate it would take more stores to carry bees from the middle of October to the middle of April, in the South, than it would at the North; but, if I remember rightly about what I wrote in this matter, I said it would take more stores to *winter* a colony where winter held as above than where we have winter for only two months, as they do at the South. After about the first of March, I understand it is *spring* in the South, while we often have six weeks of winter weather after that time. When bees begin to breed to any extent, then is when a great consumption of honey occurs; and if no honey is to be had from the fields at such times of rapid breeding, the stores in the hive are drawn upon so rapidly that starvation often occurs, when the apiarist thought his bees had sufficient stores to last for months, he judging from the consumption needed for the fall and winter months. Hence the wise apiarist has "an eye out" in this matter, from now on till the flowers give honey in the spring, unless his hives were very heavy in honey the preceding fall.

Some seem to think that mild weather. with no honey-flow, is a trying ordeal on the stores in the hive; but it depends very much on when this mild weather occurs. If in October, November, December, and January, and the bees are on their summer stands, I have found that, here in Central New York, they consume far less stores than they do in cold weather, as at this time there is no disposition toward brood-rearing, and the mild weather does not call for so much honey being used as "fuel" as does the cold. At such times, colonies outdoors consume but little more than do those in the cellar, or about a pound a month, while with cold weather the colony outdoors requires from a half more to double that amount, and this with perfect wintering. But let any colony become uneasy from any cause (go to eating voraciously) which always results in brood-rearing, and the consumption will increase, from the average, one to two pounds a month, to from five to eight pounds a month, resulting in that colony dying before spring, or its vitality becoming exhausted so that spring dwindling will be the result. When any colony becomes uneasy we call it "sick," and many think it can not be helped. But the colony at its side remains quiet all the time, and the two were as nearly alike as two peas the preceding fall. If it is necessary that the first shall become uneasy or sick, why not in the case of the other? Who will tell us something definite about the matter?

[I am glad you have no bee-paralysis now in your apiary; but I infer if you had you would not destroy or remove it. While you would not, of course, send a queen from a diseased stock, you seem to think there is no harm in shipping queens from apparently healthy colonies, even though there may be a case of bee-paralysis in the same apiary.

I can not help feeling, friend D., that, with the best of intentions, your position is wrong. Before me is a letter from a bee-keeper in the South, whose whole apiary of 70 colonies is diseased with bee-paralysis. It is practically a dead loss to him, and he has invested over $400. He has tried every thing in the way of a cure, and yet the disease rages. This man claims he got the disease from a queen sent him by a queen-breeder, or at least that the disease developed in the colony soon after this queen was introduced. There are also others, whose names I do not feel at liberty to mention, who feel positive it is very contagious, and that it is almost criminal for any queen-breeder to keep, knowingly, a colony in the apiary, affected with bee-paralysis. If there is any bee-keeper in this land, friend Doolittle, who would proceed with caution, and who would be the least likely to transmit the disease from his apiary, it is yourself. But you will not forget that you have a very great influence among the bee-keeping fraternity; and perhaps some of them, less cautious than yourself, would say, "If Doolittle can do it, *I* can." You no doubt believe that the disease is not carried through the queen. Perhaps you are right; but *if* you are *not* right, and other queen-breeders who look up to you should take your position, fearful results would follow. I do not think any harm would result if you wished to experiment, provided you isolated such colonies as might have the disease; but to keep them in your general apiary, out of which you may ship bees or queens, is, to say the least, unwise.

I grant that bee-paralysis in the North occasions no alarm to the practical bee-keeper; but in the South, evidences are coming up continually, showing that it is even worse than foul brood.—Ed.]

Heads of Grain, from Different Fields

THE DANZENBAKER SECTION; A STRONG POINT IN FAVOR OF THE TALL SECTION.

I find the Danzenbaker section a great acquisition to my apiary. The tall handsome sections, nicely glazed, weighing a pound, sell readily by the case at 20 cents each, while the 4¼ bring only 15 cents, and sell only when the tall ones are not in sight.

I find that, the nearer we come to the thickness of the brood-comb, the better they fill the sections, and the more readily they enter them.

Dealers prefer the 1⅝ section, whether the 4¼ or tall, and bee-keepers must cater to the demands of traders if they look for success in disposing of their product. I find the 4¼ x 4¼ section, 1⅝, glazed, filled, weighs a pound, and the New York retail trade demands it.

A firm to whom I applied for cartons for 1⅝ sections said to me, "Why don't you become an advanced bee-keeper, and adopt the *regular* 1¾ or $1\frac{15}{16}$ sections, so that you may obtain goods at regular prices?" I thought they needed a push toward progress. I take it that a man ready to make improvements is the *advanced* man.

Go on, dear brother, and may God strengthen your hands in all good works. "Take no heed unto the morrow." I have been young and now am old; yet have I never seen the righteous forsaken nor his seed begging bread."

B. F. Onderdonk.

Mountain View, N. J., Dec. 9.

PETTIT'S NEW SYSTEM OF TAKING COMB HONEY.

An article in Dec. 15th Gleanings, by S. T. Pettit, with the above heading, was read by me with interest, and solves a problem for me over which I have pondered considerably. During the past season I have been testing 10 hives invented by T. I. Dugdale, of West Galway, N. Y., who formerly worked in the hive-factory of J. H. Nellis, of Canajoharie. This hive has the entrance in what might be called the hive-stand, and causes the bees to enter the surplus-apartment in the same way that Mr. Pettit advocates. I have been troubled a great deal to get the outer rows of sections on the Dovetailed hives properly capped; but to my surprise the outer rows of sections in the super of the new hives, although it contained 44 one-pound sections, a part of which extended beyond the 10 Langstroth frames, seemed to be just as readily filled and capped as in the center of the super. Why in such a large super the outer row of sections should be capped so much more readily than a super holding 24 sections, is made clear to me by Mr. Pettit's experiment.

I also wish to say that the article on "child-training" is a valuable one, which all parents will appreciate. Even a bear-story or a romance will give us a greater interest in our bee-journals, as "variety is the spice of life."

Charles Stewart.

Sammonsville, N. Y., Jan. 25.

[The plan spoken of by Mr. Pettit can be easily tried by any one who has the regular Dovetailed hive. I hope others will try the experiment, and report. It is by grasping at things of this kind that we make progress.—Ed.]

NOT TALL BUT SQUARE SECTIONS, 4½x4½.

You ask what we think about tall and narrower sections. My experience is that we want nothing narrower than 7-to-foot sections, and nothing larger than 4½x4½. This size and width gives the best of satisfaction here. We use two tin separators to super. Wider sections are not built so well to the bottom-bar, and narrower sections are sometimes built very frail to the sides of the section. Do you see the point? Neither do we use starters more than 1½ inches deep, but full sheets of brood foundation in hive-body, every time, and wired. We want a section that weighs as nearly a pound as can be. Honey is getting too cheap to fool with ½ or ¾ lb. sections. Look out for Colorado and New Mexico. High prices on honey are over.

H. F. Hagen.

Rocky Ford, Col., Jan. 26.

COMBS ON WIRED FRAMES.

I read somewhere in the current number of Gleanings a report of some one, I have forgotten who, in regard to having natural combs built on wired frames. I was somewhat interested in this, as I had been thinking about the same thing myself. After thinking the matter over I made some experiments along this line the latter part of the season after the hurry of the honey season was over. I had anticipated some trouble in having such combs built so that the center or septum would come upon the wire, or that the wire would be in the center of the comb when it was finished. The result of my experiments was very gratifying. They were more perfect than I had even anticipated.

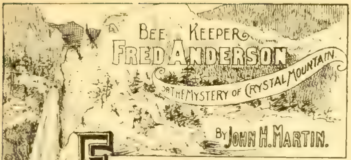
On thinking the matter over I had reasoned that the bees would cluster upon the wires, and that their first work would be commenced upon the wires, thus forming the center or septum of the combs directly on the wires; and the result of my experiments afterward proved my reasoning to be correct. Although my experiments were limited to but one colony, I am satisfied that there are some gratifying possibilities for bee-keepers in this direction.

Of course, it will not be expected that combs built in this manner will compare in perfection with those built upon comb foundation; but in these days of close competition bee-keepers are looking for any methods that will economize expense; and if perfectly natural combs can be produced on wire it seems to me it must be a step in the right direction.

In this experiment I shook a colony of bees into the hive on wire frames, and fed them sugar syrup and diluted honey with a Boardman entrance feeder. I continued the experiment only far enough to satisfy myself as to its results, having the combs only partly filled. These combs I have preserved, and should be pleased to send you a sample of them if desired, as they will speak for themselves. Possibly you might think best to photograph them and present them to the readers of Gleanings.

East Townsend, O. H. R. Boardman.

[Yes, send them on and we will show them to our readers.—Ed.]



BEE-KEEPER FRED ANDERSON

OR THE MYSTERY OF CRYSTAL MOUNTAIN

BY JOHN H. MARTIN.

FRED looked at the few colonies of bees and then at the doctor; then at the bees again.

"Charity," said the doctor, "suffereth long and is kind; is not puffed up; is not easily provoked; thinketh no evil; beareth all things, hopeth all things, endureth all things."

"Doctor, you quote my favorite passage of Scripture at an opportune moment, for I feel far from charitable."

"And why?" queried the doctor.

"Why! Well, then, the idea, doctor, of my coming up here into these lonely mountains to take charge of only ten colonies of bees when I expected to manipulate a large apiary!"

"I don't remember of telling you that I had a large apiary," said the doctor. "If I did, I beg pardon; for it was far from me to convey an erroneous impression. Besides, Fred, what difference does it make whether I have ten colonies or five hundred if you get your pay for your labor? The pay will certainly be the same for the few as the many."

"I know our agreement is to that effect; but I hardly see how I can keep busy at present upon ten colonies of bees; and unless I have something to do, I—doctor, I'll—I'll fly—I'll be that nervous, you see. But must I consider all of your learned talk as merely theoretical management?"

"Largely, largely," replied the doctor; "but I have talked with you enough to know that you are a practical bee man, and it is our duty now to make the practical match the theoretical. There are ten colonies of bees before us. Now, not only theory but practice tells us that, in a good honey-flow, a colony of bees having a prolific queen can be safely divided every two months, or even oftener. These colonies have ten frames, eight of them filled with brood. When the colony is in condition to divide I insert a tin division in the center of the hive, equalize the hatching brood, secure the queen in one compartment, and introduce a queen to the queenless part. When the new queen is accepted, and the bees get equalized, I take out half the frames and bees and place them in a new hive beside the old one. If this operation is performed carefully, there will be no massing of bees into one hive to the depletion of the other, for both have queens. I use division-boards in the new colonies, and insert frames of foundation as fast as they are drawn out. The result is, that on an average the division can be performed every two months, the year round, in this valley. You can readily figure what this will amount to. Doubling these ten colonies every two months results in 640 colonies at the close of the year, or 40,960 at the end of the second year. There may be a few failures in queens, and we will call it an even 40,000."

"Let me see," said Fred, as he took out his pencil and began to figure. "At that ratio we should have at the end of the third year, say, barring out the worthless queens, 2,000,000 colonies of bees."

"That is it," said the doctor; "you see there is plenty of work ahead if you only keep everlastingly at it."

"But, doctor, you do not really mean to increase so rapidly?"

"Only the first year," replied the doctor; "500 or 600 will be about all my field will at present bear; and, although I hate to think of it, I hope to open this valley to the public some time; then the rearing of bees for sale will be its profitable feature."

"Why, doctor, it would be necessary to run a railroad up here to accommodate a bee-ranch upon such a grand scale."

"That is coming in good time," said the doctor. "A new line from Ukiah to Humboldt Co. will pass within a mile of us."

The doctor now secured a smoker and two veils from a neat box used for that purpose, and they proceeded to investigate the interior of the hives; and, though their exterior was roughly made, and unpainted, the interior was fitted with the latest improved Hoffman frames.

"Why, doctor, your bees are the finest I ever saw," said Fred, with the eye of a critic.

"Yes, sir, and I want to show you a theoretical queen."

The doctor held up a frame, and they both looked for the queen.

"There she goes," said Fred, "through that opening," pointing his finger toward the spot; "but, my! she *is* a beauty, and so large!"

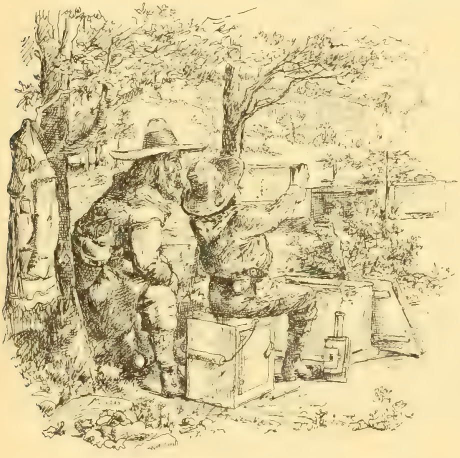
Thus they examined all of the hives; the bees were large and gentle, queens such as Fred had never seen, and new honey was coming in freely so late in the season that Fred was full of exclamations; and under them the doctor's face wore a pleased expression.

"Your queens are so fine, doctor, that I am anxious to know how you reared them."

"Well, then, I will briefly say that I have the same theory in relation to the breeding of queens that is put into practice in the breeding of horses. Perhaps you know that California horses beat the world for speed and other qualities. The results are from breeding for a series of years in locations noted for a high and uniform temperature. Now, I have applied the same principles to the breeding of queens. For four years I have been experimenting; and by keeping my breeding-hives at a high and uniform temperature I have attained the results you have witnessed in the hives."

"Doctor, you say a high and uniform temperature; what do you call a high temperature, and how do you keep it uniform ?"

"I find," replied the doctor, "that, for queen-rearing, 101 degrees brings the best results, and with the hot sulphur water, as it flows from the springs, there is no change of temperature; and, taking it at a point where it is cooled down to 101 degrees, and there placing my queen-rearing hives, you observe I can keep a uniform temperature both night and day. I tell you it is of the utmost importance."



"THEY EXAMINED ALL OF THE HIVES."

"What strain of bees did you commence breeding from ?" queried Fred.

"I imported an Italian queen through the A. I. Root Co., and then I reared drones from a native strain. It has taken much labor and weeding-out. Within the past four years I have reared hundreds of queens, and the ten you saw are only the survival of the fittest, and I guarantee they are the finest in the world."

"I think so too," said Fred, "and it is not right to hide their value much longer in this valley. Why, doctor, you have a fortune just in the matter of queen-rearing in this valley."

"Possibly," replied the doctor; and, mounting his donkey, he said, "I think we have talked bees long enough for to-day. We will now return to camp by way of this terrace and the Wis-ton-we; then we shall have seen about all of the prominent features of the valley. But, Fred, you can live here a lifetime and still find something new and interesting to admire."

"Much upon the plan of the botanist," said Fred, "who, putting his hand down upon the grassy lawn, said that under his hand there was enough material upon which to spend a lifetime of study."

"Yes, in comparison to the great world this little valley is but a trifling affair. But, Fred, trifling affairs sometimes make a great stir in the world. But, now, 'faint sounds the tinkling of the waterfall,'" quoted the doctor, as they approached the upper end of the valley. "The Wis-ton-we is an ever agreeable companion."

As the donkeys carried them safely down a steep grade, Fred espied the long glassy chute in the face of the cliff, through which he had been sent, or initiated, into the valley.

"There, doctor, I came near losing my senses in that thing; and until Sam explained the matter I was very angry at you. I was fighting mad, I tell you."

"Charity," said the doctor, "suffereth long and is kind; thinketh no evil; endureth all things."

After inspecting the peculiar elevator with its rude rawhide water-balance and rude mechanism, they returned to the doctor's cabin.

"I think you now have a very good idea of the valley," said the doctor, "and will need no chaperon to accompany you."

"Yes, doctor, and I think I will take a run down to the sulphur springs and take a bath."

Fred thoroughly enjoyed all he saw that day; and, after a prolonged bath, he felt much refreshed.

The evening shadows began to gather before his return; and as he followed the winding pathway up stream he heard Sam's voice echoing down the valley:

"H-o-o, h-o-o! all ye! h-o-o! eberybody h-o-o! Come dis way! h-o-o! de coffee am a bilin'; de hoe cake am a spilin'! h-o-o! h-o-o! all hans roun for supper! h-o-o-o!"

Fred stopped to hear the music of that simple call; and as the echoes died away in the crags above he exclaimed: "I declare, if those negroes are not always musical. Perhaps it is because I am hungry; but that is the most artistic call to dinner I ever heard."

The doctor wished to make more extensive preparations for queen-rearing, and their conversation by night and by day was queens and bees. The rest of the week they were busy in the shop, talking, planning, and working; theory and practice came in conflict quite often, but were usually settled upon the practical side.

Late Saturday evening, when the doctor bade Fred good-night, he said, "I must go out to the rancheria to-night. You and Sam will have the valley all to yourselves over Sunday."

The doctor was expected back before Monday morning; but Fred and Sam were left in an increasing degree of wonderment until Wednesday morning, when the doctor did return. At the breakfast-table he was disposed to be silent, and appeared much depressed. When they arose from the table he picked up his felt hat and said, as he held it up, "That was a sound hat when I went out Saturday night; now there are holes through the crown. Those were made by a bullet while the hat was on my head."

"Dat's what I call hewin' close to de line," said Sam; "for gracious, if de lead'd come so near my head, ebery kink in my wool 'ud been straightened, suah."

"Why, doctor, have you such enemies outside?" asked Fred. "That was certainly a close call."

"Yes," replied the doctor; "there are enemies without. Sit down again and I will tell you. You have not lived long enough in this western country to have learned the peculiar tactics of the land-grabber. He takes up a government claim of 160 acres, and then holds the several thousand acres adjacent by bulldozing off every would-be settler. If the settler is obstinate his stock is usually stampeded or mutilated. If he still persists in holding his claim, a bullet ends his career, and the land-grabber is monarch of all he surveys until another victim appears. In these remote parts the murderer escapes punishment, from the fact that the murder is not even investigated There is such a land-grabber just over the mountains from us. Another murder was committed on his domain. In this case the murdered man had a spirited son, and, having heard of the mysterious man of the mountains, at the instigation of Mr. Landgrabber he was upon the watch for me, and that explains the bullet-holes. There are so many intricate and even dangerous passes around this mountain that I easily slipped away from my pursuers. Now, if I mistake not, this young man, if he persists in holding his father's claim, will, in due time, join his father in the spirit-land, and his taking-off will be laid to the mysterious man of Crystal Mountain."

"But, doctor, why don't you go right out and clear up this matter?"

"I fear, Fred, that there has been so much evil laid to me, that, should I appear openly, I should be shot on sight. I feel that, by and by, something will turn up to relieve me. Meanwhile I must stay in the valley and work out my destiny."

Secure in the hidden valley the doctor and Fred pursued their planning and work with the bees, and in a few weeks the episode was well nigh forgotten. Fred found the little apiary of ten colonies, which he at first despised, a center of great preparations for larger operations. The doctor had for some months been laying in a stock of supplies, and had enough for all present needs; but, even after it became dangerous for him to go outside the valley, his Indian allies, who roamed the country at will, brought him such small things as he needed.

Preparations for increasing the bees were not completed until the first of January. When every thing was in readiness the work went forward with much precision. Fred was delighted at the ease with which the divisions were accomplished, and said they could be done every six weeks. But the doctor said there was some uncertainty about it; and as two months' time was safe, and fast enough, they would stick to that.

As the months passed, Fred thought many times of his outside friends; and when working alone his mind was constantly upon Alfaretta. Many talks he had with the doctor upon her mental trouble. The doctor was always deeply interested, and would often say, in an absent-minded way, "Buell—Buell! If that name were only Bull—any way. I shall investigate that matter the next time I go to Sacramento."

Fred had been in the valley well toward a year; had made the fifth division of the bees, and was now the proud manager of 300 colonies.

Matters in the valley were moving along in their usual channel, when, one evening as they were about to retire, two Indians came into the valley in a much perturbed state of mind, took the doctor aside, and, after a hasty consultation, he departed with them. Fred and Sam sat for a long time speculating upon the unusual occurrence, and both fervently hoped the doctor would not again fall into the hands of the land-grabbers. The doctor not returning, they both at a late hour retired. Before sleeping, Fred's last thoughts and last little prayer were for the welfare of Alfaretta; and with her name this night he included the doctor; but he slept very lightly, and dreamed again of the night episode with Dawson, and saw again the white apparition on the stump. "I declare," said he, as he awoke, "how real that did appear!"

Again he slept, and dreamed; and as the streaks of dawn were breaking in the east he again awoke; and, sitting up, he said, in an undertone, "What a vivid dream! I thought I heard her singing."

Then to his astonished senses came the strong clear tones:

The night is stormy and dark,
My lover is on the sea;
Oh let me to the night winds hark
And hear what they say to me.

By E.R. Root
Editorial

MR. B. K. S. BENNETT, editor of the *Pacific Bee Journal*, who published some reflections upon the character of one of California's prominent bee-keepers, Mr. Geo. W. Brodbeck, reference to which has already been made in our columns, has, in his January number, published a retraction expressing his regrets, as Mr. B. is willing to forgive and forget. We are glad to announce this happy termination.

THE NEW DRAWN FOUNDATION.

WE are receiving quite a number of testimonials expressing appreciation and surprise at the success we have achieved in producing the new article. Here is a sample of how a bee-keeper who not only knows what he is talking about, but who is well known to the whole fraternity, writes:

> The sample of drawn comb is this day at hand. Thank you. I must say that it exceeds my expectations, and I predict great things for it if it can be put on the market at a reasonable price. I have had considerable experience with combs, and know their value. E. T. FLANAGAN.
>
> Belleville, Ill., Feb. 22.

LOW PRICES ON HONEY, AND WHY.

IT will be noted in another column that California produced in one year about 425 carloads of honey, not including small amounts consumed locally. Arizona and Colorado are coming up rapidly to the front as honey-producing States; and one of the bee-keepers wrote the other day, "Look out for Colorado when our honey gets on your eastern markets." With continuous honey-flows from three to six months, is it any wonder that our western brethren can produce honey cheaply? Of course, the West has to contend with the freights; but even then, with their 600 or 700 cars of honey that is liable to appear at some seasons of the year, it is not much wonder that prices have had to drop some. We are in hopes that the new comb will help bee-keepers produce honey more cheaply. We shall see. One thing, however, is very gratifying. The fact that such vast amounts are produced and consumed yearly, shows that honey is coming to be more and more a staple article somewhere; for it is practically certain that no such amount could have been carried twenty years ago, even in proportion to the population at that time.

THE NEW HOFFMAN FRAME, AND JULIUS HOFFMAN.

SOME days ago we received a letter from Mr. Julius Hoffman, after whom the Hoffman frames were named. Here is what he says:

> *Mr. Root:*—I have noticed in GLEANINGS, page 94, that you are doing your best to improve the Hoffman frame, and think the change will be a success. As for me, I still use and make it as I had it at first, but make hive and frame 1½ in. shallower than before, as I now raise comb honey principally. I am wintering 800 colonies. They seem to winter excellently. JULIUS HOFFMAN.
>
> Canajoharie, N. Y., Feb. 11.

Mr. Hoffman has for a good many years, in effect, secured the same results that we sought to obtain as set forth on page 94; namely, preventing the end-sticking of the top-bars. He long realized the necessity of keeping these intact, but he does it in an entirely different way. The hive-rabbets are shallow and narrow, and the frames come flush with the top of the hive. The ends of the top-bars are widened the same as the end-bars, and are entirely covered, so that the bees can not get at them to chink in propolis. But the general construction of the Dovetailed hive, or any hive based on Langstroth dimensions, made it necessary to depart from the original Hoffman somewhat.

Eight hundred colonies in winter quarters! Well, that is the kind of bee-keeper Mr. Hoffman is. The fact that he was so extensively engaged in bee-keeping, and that his appliances worked so well, led us to believe that he was a safe man to follow, and we did. The consequence is, we have pushed the Hoffman frame so that it is now used very largely all over the United States, when formerly it was used only in certain sections of New York.

APIS DORSATA AT THE LINCOLN CONVENTION.

ONE of our cotemporaries, in criticising the action of the Lincoln convention regarding *Apis dorsata*, jumped to the conclusion that it was at the instigation of a so called "ring," made up of Drs. Miller and Mason, and York and the Roots. This is what the editor of the *Nebraska Bee-keeper* says on the subject.

> I have been reading with some interest the discussion, pro and con, of the action of the Lincoln convention in regard to the importation of *Apis dorsata*. Now, I wish to say that I think but one or two gentlemen know that such a resolution was thought of until I read it and moved its adoption. As to the why I feel opposed to the importation of *Apis dorsata* by the general government at this time and in the manner asked for by the Ontario County Bee-keepers' Association, I will say:
>
> First, I do not think it is a bee that would do us any good. A score of years ago we had in our employ a bright young man. A year or so later found him on his way as a missionary to Africa. Three or four more years pass along and he revisits his boyhood home and parents in our town. While here he described animals, insects, and bees, as found in that far-off land. Although not particularly interested in *Apis dorsata* at that time, yet from his descriptions, and those read later, I think they may be identical, or nearly so, and I at present believe worthless to us, other than as curiosities. * * *
>
> Now, gentlemen, instead of growling, and throwing stones and slurs at "Root, Miller, York, or Mason," who *did not* introduce the resolution at the Lincoln convention, throw them at some one out in the Pacific Ocean. If Root or Miller or York had needed *Apis dorsata* in their apiaries, like gentlemen they would have inclosed a $10 bill with a well-provisioned queen-cage to some agent or missionary in far-away lands, and had *Apis dorsata* queens to sell to their customers before the government agent could pack his gripsack ready to start. Whenever we have learned that *Apis dorsata* is *any thing desirable* it will get here.

☞I wish all of our bee-keeping friends could not only *hear* but *see* Mr. Whitcomb give expression to the above sentiments. If you could feel his personality once, and understand his good-natured sparkle, you would no more think of throwing "stones" at him than you would at your grandmother.

"COMMERCIAL RATINGS."

On page 72 of the *American Bee Journal* for Jan. 28, we find the following severe criticism in regard to the way commercial ratings are made:

> "What a contemptible system it is, though! Now, suppose I had been an enemy of this man, what an opportunity to have ruined his reputation! On the other hand, had I been his most zealous friend, here was a chance for me to give him a high but false rating."

After having had many years of business experience with both Dun and Bradstreet, I want to make a little protest to the above. No doubt they sometimes get a report from a person who is prejudiced against somebody in his own town; but I am sure they recognize the possibility of this, and take great pains to avoid injustice. For instance, sometimes it is hard to get at once the exact facts in the case; additional facts follow sometimes for several weeks or months. The additional facts from some other standpoint usually corroborate the first one, but sometimes they present the matter in a different light. Again, *we* assist these agencies in keeping track of people connected with bee culture. Sometimes they think we have been a little too severe, or may be the reverse; and they often go to much pains and expense in order to get at a fair and impartial rating of the person. A *few* times I have known them to be misled; but I am sure such cases are the exception and not the rule. We are continually asked in regard to the standing of certain people; and where a stamp has been inclosed I have always felt it a pleasure to help business along by giving a recommend to any worthy man, or in cautioning about giving improper credit to the unworthy.

A. I. R.

USING WIRE STAPLES OR SIMILAR DEVIÇES FOR SPACING FRAMES; A. I. R.'S RECOLLECTIONS.

In the earlier volumes of the *American Bee Journal* this matter was discussed pro and con at such length that our good editor, Samuel Wagner, finally shut down on the discussion. Nails were suggested; blind-staples, and projections of wood, not only from the top-bar but end-bars. At that time I was using H. A. King's American hive, and advocated projections to hold the frames in place when the hives were to be moved. The editor suggested something like this: "The movable frames as given us by Langstroth can be moved near together or put far apart as you may choose. In using the fingers of the hand we sometimes want them close together. Again, we want them apart more or less. Is not this much better than to have them spaced at fixed distances?" About this time, or earlier, Ransom & Cobb, of Cleveland, who manufactured Langstroth hives, fitted the frames all with wire staples driven at a certain point and depth. When the extractor came into use, a good many bee-keepers complained that these staples dulled their honey-knives. They caught against the ends of the hives in putting the frames back in place, and finally most bee-keepers decided to go to work and pull out the wire staples, nails, and ever so many other fixtures that had been attached to the frames to help this spacing business. When it was first suggested, a great many bee-keepers went to the trouble of putting staples, or something equivalent, into their frames clear through some large apiaries. Well, if I am correct, nearly every one who did this, sooner or later went to work and pulled them all out. There was no end of spacing-devices—staples, tacks, nails, folded bits of tin, or sheet iron, and pieces of wood tacked on where they seemed to be needed. Years later, when out-apiaries began to be so much in vogue, the Hoffman frame was introduced, and seemed to find a permanent place. This frame, with recent improvements, has several advantages that none of the early experiments right along in this line seemed to include.

It is said that history repeats itself. The frames with staples as *side*-spacers, as friend Boomhower uses them, were not popular. Why, then, should they be popular again? Hoffman frames, although discarded by individuals, have been used for perhaps twenty years, and they increase in popularity.

A. I. R.

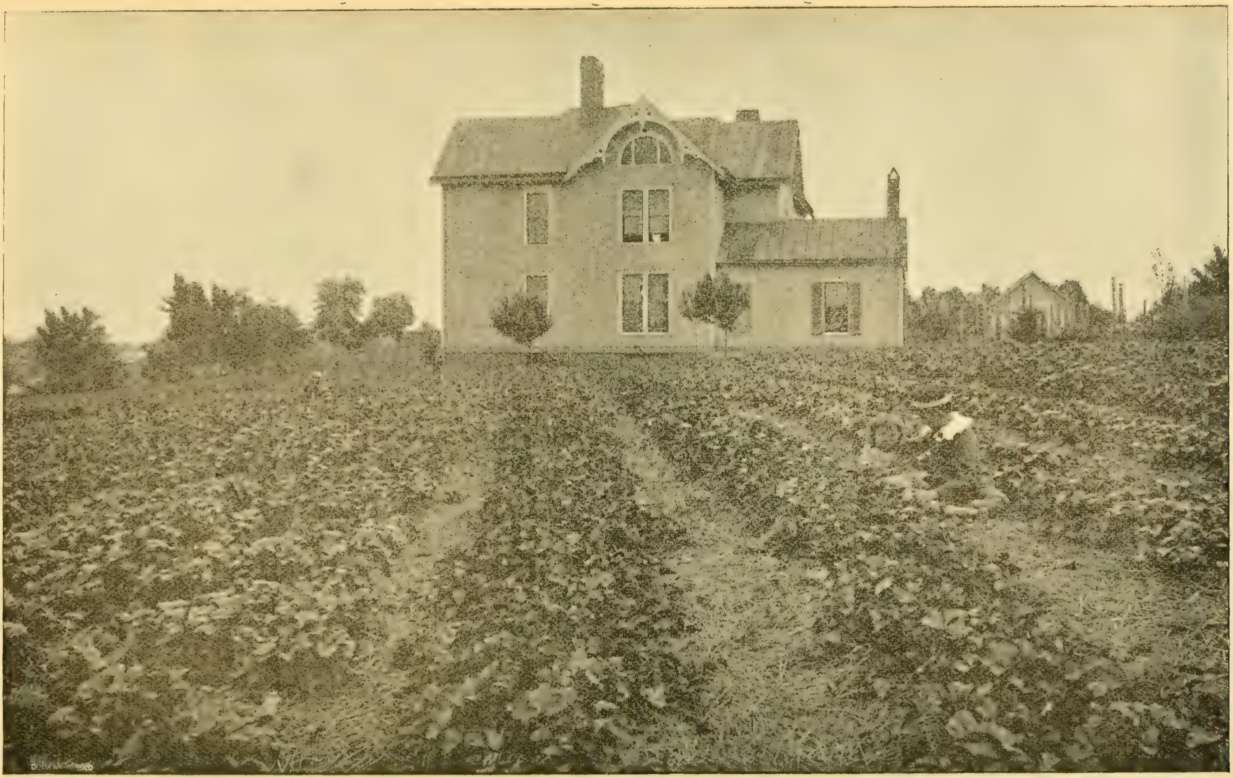
THE LINDEN.

I come with a song for a tree near my cottage—
  A treasure God placed in his own garden-bed;
A tree which has stood while my wife and my children
  Grew sweet as the creamy-white blossoms o'erhead.
Around it the giants of nature are standing—
  The oak and the walnut—primeval and grand;
But nothing in forest or field can compare with
  The linden in whose cooling presence I stand.

When suns of mid-summer are hot and oppressive
  We keep our noon-trysting beneath its deep shade;
Its emerald roof gives a promise of shelter
  From fiery old Phœbus when scorching the glade.
The catbird and robin have left the ripe berries,
  To rest in the boughs of my favorite tree;
They'll give me a song for the fruit which they pilfered,
  And evening shall witness a bird-jubilee.

How charming to me is the music created
  By swift-flying bees when exploring its bloom!
My dreamy repose as I swing in my hammock
  Is often enriched by its grateful perfume.
Oh sing not to me of blest Araby's odors—
  Of spices and incense from tropical seas!
But waft to my senses the fragrance of linden
  Exhaled by the breath of the home-coming bees.

—Eugene Secor.



A MODEL STRAWBERRY-PATCH GROWN EXACTLY AFTER THE DIRECTIONS GIVEN BY T. B. TERRY IN HIS STRAWBERRY-BOOK.

GROWING STRAWBERRIES ACCORDING TO OUR STRAWBERRY-BOOK.

WHAT AN AMATEUR DID THE VERY FIRST TIME AFTER HAVING DIRECTIONS FROM THE BOOK TO GO BY.

I send you a picture of my strawberry-bed. I have tried to raise them several times, but without success. I finally sent for your book on strawberries, and went as nearly as possible by the directions in the book. I put in a small bed and had good success. We sold nearly a hundred dollars' worth besides all we could eat. I am only an amateur. I have the Sharpless, Crescent, Haverland, and Gandy. I forgot to mention that, while everybody else's strawberries were a failure in this locality on account of drouth this year, ours were a success. You can see in the picture we send that Master Verner S. is as fond of *eating* berries as he is of *picking* them. J. L. SCHLEGEL.

Richmond, Ky.

It is very seldom we get a photo of a nice strawberry-bed of sufficient accuracy to show the foliage and the berries. Our good friend Schlegel owes his success largely to the fact that he is a photographer as well as strawberry-grower. The ground was put in order, probably, exactly according to Terry's directions; that is, by turning under a heavy growth of clover for the berries to grow on, the ground being, of course, duly enriched, that the clover might make a great rank growth. After the clover is turned under, and the ground worked up fine, and firmed, then the rows are laid out 4 feet apart, and the plants set out early in the spring. Then the runners were trained so as to have the plants evenly spaced all over the ground, leaving only sufficient space in the paths to walk between the plants.

During the first winter the plants were mulched with plenty of straw between the rows, and with cut straw between the plants; then during the heaviest freezing weather just enough straw was put over all to conceal the green leaves. When frosts were past so the plants began to grow, this surplus straw over the plants was pushed aside just enough to let the green leaves come out through them. Spring rains do the rest in the way of packing the straw down out of the way. The beds were kept so clean that not a weed nor even a spear of grass is visible through the luxuriant foliage. Friend S. has evidently carried out the plan to the letter, and every thing is just right. No wonder he sold a hundred dollars' worth from what he calls a "small bed." I am sorry he did not tell us just how much ground he did have.

Now it is not too late, dear friends, to get *your own* strawberry-patch into similar trim, or at least partly so. As soon as the snow goes off, and the ground is soft, get out every weed and spear of grass. If you have not put on the necessary mulching, get at it right away as soon as the snow is gone and the ground is not frozen. Nobody wants muddy berries. They must be kept clean; and straw mulching, or mulching of something else, is about the only way to do it. We use to a large extent coarse stable manure. We can get this at about the price of straw. Of course, it is open to the objection of weed seeds that will probably spring up and bother you before the berries are picked. If, however, you do not expect to run your strawberry-bed another season, you may let it get pretty weedy while you are picking the last of the berries; but do not let any of these weeds go to seed; and just as soon as you decide there are not enough berries left for another picking, plow the whole thing under—weeds, stable manure, strawberry-plants, and every thing else. Then put in cabbage-plants, potatoes, or any thing else you happen to want on the turned-under strawberry-bed, and then you will have a crop for certain—that is, if the strawberries were manured as every strawberry-bed ought to be.

NOTES OF TRAVEL
BY A. I. ROOT.

THE SODA SPRINGS NEAR ROBERT PHINNEY'S.

Along with the water, every now and then there arose a great bubble of some kind of gas. This gas is probably carbonic acid, although I did not have time to test it. The spring water is so strongly charged with gas as to give it quite a pungent taste—something like the effervescing springs of Manitou. It is so strongly impregnated with soda, however, that one does not want to drink very much of it. There are toward a dozen springs scattered along over perhaps half an acre, and the water collectively makes quite a good-sized little stream. It is so warm that on a frosty morning quite a fog hangs over the neighborhood of the springs, and follows the stream of water for quite a distance. The water is warm enough for a comfortable bath; and if one or more of the springs were inclosed even in a canvas tent it would be a rare bathing-place. I have been told by those who have tried it that it seems almost impossible to sink in the water, as it seems to buoy or push you up. This is probably caused both by chemicals contained in the water and by the force with which it pushes up through the boiling sand. No doubt these springs possess medical properties (that is, if any of the warm or hot springs do, aside from the matter of temperature); but it is so far away from everybody that there is not much prospect of their being developed very soon. In this neighborhood they have mail only once a week. How does that sound, friends, to those of you who live in towns where you have mails out and in, three or four times a day?

Next morning we made a trip still further up into the mountains. We crossed the beautiful clear Beaver Creek spring water several times, past the schoolhouse where Mrs. Phinney was teaching; and finally away up in a narrow canyon in the mountains we came to the residence of R. Cassner. Before reaching the place, however, I was charmed by a little babbling brook coming up out of the canyon, and actually running up hill—that is, if I took my eyes for evidence. It seemed to run up hill right merrily, too, for it babbled and flashed in the sunlight, and hurried along as if it had lots to do and could not waste a minute. Its final destination was an alfalfa field, where it spread its liquid treasures over the green and growing plants. We followed the stream until it came clear up to the door of the house. In fact, you could hardly get outdoors and in without jumping over it. A party of dogs met us at the bars, and barked so loud and long that the people could hardly make themselves heard when they tried to welcome us. I couldn't quite make out whether the dogs wanted to eat us up or whether they were simply manifesting their pleasure at seeing visitors.

Right back of the Cassner cabin is a mountain so nearly straight up for almost a whole half-mile that it makes your head swim; and away up under the very crest of the table-lands on top we saw some cliff dwellings. While friends Elvey and Carey took their guns and went off for a hunt, I visited friend Cassner's garden and fruit-orchards, all of which are kept booming under the influence of this babbling brook. The growth of apple-trees, apricots, peach, pear, cherry, and every thing else up in these mountains, is absolutely wonderful. Let me give you some figures. I was shown one apricot-tree that had yielded $50.00 worth of fruit during the past season; one Ben Davis apple-tree only nine years old, the fruit from which brought $25.00 during the past season. Four peach-trees bore a ton of peaches. In the garden, eight rows of peppers, each row 30 steps long, yielded $50 00 worth of peppers, and they were sold at 10 cts. per lb. Now, one secret of the large amounts received is, that almost all kinds of fruit brought at Flagstaff and Jerome 8 or 10 cts. per lb. The owner says he received about $1500 from the fruit grown on four or five acres right around his little home.

Now, before you all get the fever for moving out on some of these mountain canyons to get rich raising fruit, let me tell you that this fruit had to be all hauled over mountain roads from 30 to 50 miles. There are nine children in the Cassner home; and, as nearly as I can make out, pretty much all of the nine were busy during fruit time, gathering fruit and getting it to the city markets. I know the prices mentioned are not very much out of the way, because while I was present in one of the mining towns a little girl came in and said her ma wanted 50 cents' worth of apples. Now, if a customer should give me such an order I should want a stout man with a wheelbarrow to deliver the 50 cents' worth. Not so in this case. The storekeeper put the few apples into a common tin grocery-scoop. He weighed them up as he would tea and coffee, put them into a paper bag, and the little girl carried them home without very much trouble. She got 5 lbs. of apples for her half-dollar. Why not ship apples into these mining towns, from the East? Well, it is the old story of the awful freights. In one of these mining towns they tell a story of a peddler who wanted 5 cts. apiece for some sewing-needles. When his customer remonstrated he said it was as low as they could possibly be sold, on account of the expense of shipping so far over the mountains!

Now, there is something exceedingly strange about these mountain-canyon homes. I supposed I had seen all of the fruit-orchards; but my comrade said he had another nice little strip of orchard over there by the creek.

"But," said I, "there is no room for an orchard. On the further side there are the rocky cliffs close up to the water, and we have already seen every thing there is on this side."

"Oh!" said he, "you will find quite a little strip of wonderfully nice ground when we get there."

And when we did "get there," sure enough, there it was. After we had seen the fruit-trees with their wonderfully luxuriant growth, we sat down by the door and tasted some of the beautiful apples. Although it was in the month of January, they were as crisp and delicious as any apple I ever tasted picked right from the tree. In fact, it seemed that day as if they were the handsomest and most luscious apples I had ever tasted in my life. I did not wonder then so much that people were willing to give 10 cts. per lb. for them.

I expressed a wish to see the wonderful spring where this babbling brook came out of the mountain-side. All the time it looked to me exactly as if we were walking down hill while the brook was running up hill to meet us. It looked down hill; but when I tried to walk I could not get along as easily as one does in going down hill in reality. The spring came out of the rocky mountain in several places, making the moss, grass, and other vegetation grow with wonderful luxuriance wherever it laved them with its magic touch. The banks to keep the irrigating water within bounds are sometimes very frail, and, it seemed to me, insecure. But everybody has learned to be careful. If in jumping across the brook you should put your foot on the soft edge of the bank, you might let all the water get away in a hurry; but, as I have said, every one learns to be careful.

After I had finished my visit I jumped on my wheel and rode along beside the babbling brook. Oh, yes! sure enough, the wheel tells very quickly which way is down hill and which is up. Hills that looked too steep to climb up in going one direction were surmounted without any effort at all; but if you are going the other way, a hill that seemed very moderate to the eye would make you puff and blow till you decided to give it up and walk. I can not tell why these mountain canyons confuse one's ordinary judgment in this matter of up hill and down. There is something weird and enchanting about the whole matter. Mr. Cassner has the last dwelling-place up in the canyon. In fact, the road ends at his little plantation. I suppose there are hundreds of other places where wonderful results could be accomplished in the way of gardening and fruit-growing; but the great trouble at present is the enormous expense of getting your produce to market.

OUR HOMES.

Who forgiveth all thine iniquities; who healeth all thy diseases; who redeemeth thy life from destruction; who crowneth thee with lovingkindness and tender mercies.—PSALM 103:3, 4.

I returned from my western trip so as to reach home Saturday morning, Jan. 16. Several had cautioned me about going north right in the depth of the winter, especially in regard to the sudden transition from a warm or tropical climate to the cold Ohio winters. Saturday was a rather mild day for January, and I went all around home looking after things, feeling about as well as usual. Sunday morning I discovered I had taken cold. I went to church in the morning, but on the way home I felt pretty well satisfied that something was the matter. Next day a doctor was called, and he said my old trouble, malarial fever, had got hold of me, together with a very severe cold. He said I should have to keep warm, and not even *look* out of doors. He did not tell me my disease was grip; but from what I had heard of it I decided it must be "grip" for sure. At any rate, some tremendous thing was *gripping* at my vitals in a way I believe I had never experienced before. By the time our blizzard got along, 16 degrees below zero, I felt pretty sick. I do not know what gave me such a terrible cold unless it *was* the sudden transition. I was whirled from New Orleans up to my home here in Northern Ohio in just about *26 hours*, thanks to the L. & N. R. R. I was well bundled up, and can not understand even now just how or why I caught such a cold; but I do know that, in a few brief days, my physical strength and energy seemed entirely gone, and I felt astonished to find my spiritual life also dwindling away, as it were. I remember of feeling strongly impressed that a sick-bed was not the best place in the world for one to make his peace with God. For a little time I felt almost too sick to breathe even to myself that old familiar "Lord, help." I employed the same physician who treated Mrs. Root; and in about a week he said my fever was broken, but that I should have to be careful, and not be surprised if it took me a *good while* to regain my appetite, strength, and energy; and it was just about four weeks from the time I was taken down before I ventured to step outdoors.

I suppose others have had a like experience to my own. The idea *would* keep getting into my feverish brain that my work on earth was done, and that I was too ricketty and broken down to think of any thing regarding the future. In fact, it seemed to tire me to think or even to live. As usual, Satan suggested that it would be a fine thing *not* to live. I remember one feverish night, while I was suffering, the idea some way got into my mind that death was not going to give me any relief, for I should soon get awfully tired of *being dead.* So I rejected Satan's suggestions. And, by the way, I am inclined to think there is a great truth somewhere along in this line.

Within the past year there seems to have been almost a mania for suicides. Somebody has called it an epidemic of suicides. Now, if some of these poor deluded victims of Satan do not get "tired of being dead," or, in other words, if they have not already discovered that they have made a terrible blunder, then I am mistaken. Some have chosen death rather than face the consequences of having their criminal proceedings brought to light. They seemed to think that in death, and a self-inflicted death, they will find a refuge. I feel *sure* they have made a mistake.

As I began to recover from the effects of the fever, and my brain began to get clearer, I remember a good many times, especially while suffering, that I prayed very earnestly that God would not only give me health, but that he would give me wisdom that I might advise and direct others in this matter of caring for these bodies of ours. By the way, I think I shall have to confess that I seldom pray with much earnestness unless I am in trouble of some sort. If this is true of all of us, dear Christian friends, we ought to be careful how we murmur or complain of sickness and pain, or trouble of any sort. For a time it seemed as if my prayers were not heeded. But I have had too many similar experiences to lose faith, and I knew that the great Father *would* in his own good time give me light amid the darkness. Our text has it exactly: "Who forgiveth all thine iniquities, who healeth all thy diseases." Not only that, but in the next verse we have, "Who redeemeth thy life from destruction." Without faith in God, the inevitable conclusion would be that I was going to destruction. I do not know whether other people are beset by similar despondent feelings like my own or not. I remember of feeling it almost impossible to shake off the impression that kept *continually* getting such a firm hold on me that I should never get well. The doctors told me years ago that I should never again be a "well man;" but since then I have had some most glorious experiences in the way of health, energy, vigor, and even rejoicing, because of my strength of muscle. Well, there is still a little more of our text: "Who crowneth thee with lovingkindness and tender mercies." For many days it would seem as if I was not making any gain at all. Then there would be mornings when I felt a good deal better, when I could sing with feeble voice, "Praise God, from whom all blessings flow." By the way, when we were out in the desert, although we were all professing Christians it did not seem convenient or practicable to have any sort of family worship; and as a substitute I used to sing every morning, and a good many times through the day, the doxology.

Now, the purpose of this little talk to-day is to tell how God answered my petitions for health and wisdom, and how to teach others along in this line of getting well and keeping well. While I prayed I made the matter a study. I have sometimes wondered that God gives us so little specific direction in regard to what medicines we should take or what physicians we should employ, or whether we should use medicines at all or employ physicians at all. I can only say that, for myself, I have been forced to decide that he has perhaps wisely left these things, at least to a considerable degree, for us to decide as best we can. The great Father does not propose to do our work for us, nor even to do our *thinking* for us. He will not hear a farmer's prayers, and grant him great crops, unless the farmer uses both brain and muscle to accomplish the desired end.

The disease that had got hold of me was gripping for my lungs. The doctor said a little reckless exposure on my part might send me beyond the *reach* of doctors or medicine. I soon discovered that I should have to keep warm—a good deal of the time *too* warm to be comfortable. Unless I did, that unfeeling giant, which we may as well call Grip as any thing, made me feel his clutches. While doing this, some fresh air and a little outdoor exercise (not too much), I found to be of much benefit. With a weak stomach and impaired digestion I had to be very careful of my diet. Appetite did not seem to be any guide, for I did not really feel like eating any thing. After I got able to be out I noticed the chills came back once or twice a day, and kept giving me a setback. I remember of wondering what the cause could be, and I prayed earnestly in regard to the matter. One day after thus praying, the matter seemed to be made very plain to me—almost as if some kind friend had explained it. It was this: I was getting hold of business a little, and a good deal needed my attention. I would oftentimes be busy until dinner-time or supper-time. I sat down to my meals, and remembered, when I sat down, that I was *very much* exhausted; then an hour later I would have a chill. The suggestion that came to me was this: That I must go home an hour or an hour and a half before meal-time, and take a good long rest. Since the return of my sickness I had been troubled some with insomnia. I could not go to sleep just before meal-time as I did last summer. Then this suggestion, or this kind friend who was advising, said, "If you do not succeed in going to sleep, lie perfectly still for an hour or more before you think of taking food or nourishment." I felt happy in a moment; in fact, I felt sure I understood the cause of those chills, and that I should not have them any more, and I did not. A good many times it was hard to stop work at half-past three, especially when I did not feel faint or tired; but when I woke up just as supper was ready, I felt like a different person.

Perhaps you may say that Dr. Salisbury told me the same thing twenty five years ago. So he did, substantially; but I had forgotten it or had neglected it. And here is a great truth: God often answers our prayers by reminding us of things we knew already, but which we had forgotten or neglected. With the lean-meat diet, I was troubled with constipation more than I ever had been before. The grip seemed to have crippled my digestive or other organs, and the hot-water treatment did not seem to do a bit of good. The doctor suggested a mild physic; but I told him physic would not work with me as it did with some people. When I told him how it distressed me he said I was right. By the way, I do not believe God intended we should take physic;* and yet I knew by sad experience that it would not do to neglect a matter of this kind day after day for almost or quite a week. I made *this* thing a subject of prayer, always adding, "Not for myself, but that I may safely advise others who have like troubles." The answer to this came also almost immediately. While talking with my mother and sister, I happened to mention the matter. My sister went at once to a bookcase and pulled down some sort of medical book. An old physician said that for eighteen years he had prescribed and used *ground wheat*, with scarcely a failure. I had that same feeling that her suggestion was in answer to my prayer. It was something I knew already; in fact, it has been several times printed in these pages. My sister happened to have some in the house. I took it right home, commenced using it at every meal instead of bread and butter, and in three or four days the trouble was gone. While Mrs. Root was preparing it her eye chanced to alight on something in one of the health journals. It covers the ground so thoroughly that I give it to our readers. We extract as follows from *What to Eat*, published at Minneapolis, Minn.:

> At this particular period, when the times are so hard, any thing which will aid us to economize is grasped very eagerly.
>
> The first step is to go to the miller and buy a bushel of his best wheat, and direct that it be recleaned before delivery. At the present price this ought not to cost over 75c for the wheat, and 10c or so for the cleaning. The next article to purchase may be a small-sized grinder, but it is not entirely necessary. After using the ordinary coffee-mill, I found a machine better suited to the purpose. It is a reduced size of the large spice-mills which one sees in every well-regulated grocer's shop. I presume there are others as good, but mine cost $3.00, and was made by the Enterprise Mfg. Co., of Philadelphia. Every kitchen is supplied with the ordinary double-bottomed tin boiler. You are now ready for business. Time, and three hours of it, for cooking, is one of the essences of this dish. Another important feature to be observed is that the wheat should not be broken until you are ready to start cooking the same. Since three hours are necessary, a part of the time during the preparation of the evening meal will have to be used, and the rest in the morning; but, above all means cook it at least three hours, and you have a dish fit for every American sovereign.
>
> I came near omitting one point, which every one will want to know, and that is, that each grain of wheat should not be broken into more than four equal parts (two make it splendid) before cooking.

About this time I happened to notice Dr. Miller's little tract, "Food Value of Honey." I read it, and here seemed to be another suggestion. I found that, while fruit and vegetables did not seem to agree with me at all, the wheat with, say, a teaspoonful of thick nicely ripened honey, would be digested without a bit of trouble. Once more:

Several friends have written me at different times that, if I could not use milk as an article of food, I would find by trial that a small quantity of cream would be digested easily. I spoke to our milkman, and he said he would bring me five cents' worth of cream every morning, if I wanted it. Some of you may think that half a pint of cream every day is rather extravagant. Look here, my friend: It costs a dollar or more to have a doctor call. With this same dollar you can get twenty rations of cream; and for my part I should very much prefer to take the cream rather than the doctor's medicines (no disrespect to the doctor; for if he is a good one he is as anxious that you should keep well as you are). If you buy cream instead of medicine, you help the farmer instead of the druggist, and *I* think he needs help the most, *just now*, at least.

I get a great many bulletins from the different experiment stations. There are so many of them that it is impossible for me to read them all through; but I am rejoiced to note that they almost always have a summary, and I very much enjoy reading it. Now, suppose we have a summary to the little talk on health that I have been giving you to-day:

1. God does not always tell us which doctor to employ, nor what medicine to take.

2. He does, however, teach us in many ways to be careful of sudden exposures, and to keep these bodies of ours well protected during severe weather.

3. He also enjoins us to use both pure air and pure water, and take as much outdoor exercise as possible.

4. He tells us in different ways to be careful about overdoing; to rest our bodies; to take proper rest before partaking of our accustomed daily food.

5. While both God and nature (which is perhaps another name for God) do not seem to recommend physic, he has provided in great abundance food that will, at least to a great extent, render physic unnecessary.

6. While God has not seen fit to tell us *exactly* what kind of food we should use to nourish our bodies, he has, in his holy word, specially mentioned both milk and honey as things to be sought for and considered wholesome. Perhaps wheat has not been mentioned so specifically as milk and honey; but I think every careful reader of the Bible may gather that God's purpose and intention was that he should use both the flesh of domestic animals and the different grains that are recognized the world over as the obvious food, at least to a great extent, for mankind.

The modern way of grinding and preparing grains for food, I think, must be to a great extent a mistake. The method of grinding that has been outlined in this article is almost exactly, in the results attained, like the ancient methods of grinding grain.* All through the Territory of Arizona I found scattered almost everywhere stones hollowed out, somewhat trough-shaped, in which they ground or bruised the grain they used for food. The smaller stones, used to push back and forth inside the larger ones, are also found everywhere. Many of these are worn down to a thin edge at each of the ends. When we get back to outdoor life and broken or crushed whole grain, instead of fine white flour, we may expect to enjoy such health as God's children did in olden time.

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* I have tried a great many kinds of physic in years past, especially the little pills that have been recommended as being so "mild," and that work along in harmony with nature's course. But my conviction is that they are in one sense *poisons*, all of them. Of course, one may accustom himself to take poison daily, in moderate quantities; but the result, as your family physician will tell you, is that the poison must be gradually increased in quantity to produce the desired result. I have been told there is an epitaph on a certain tombstone, somewhere, that reads,

"I was sick, but would be better; took physic, and died."

This epitaph was intended, I presume, as a warning to future generations.

* The ground grain is then cooked by slow heat a long time; and the cakes called "tortillas" are a staple article of food even now among many Indian tribes.

Humbugs and Swindles.

Just now there is a great number of humbug advertisements going the rounds, and they seem to find a place in the columns of many otherwise respectable journals. I allude to the kind that are always signed "A Farmer's Daughter," "A Reader," "A Brother Farmer," etc. This kind of advertisements somewhere in the reading-matter refer to certain firms. The writer tells how much money he made in a very short space of time by selling the wares of certain houses. How to make a windmill is just now having quite a run. You are to send a dollar, or some smaller amount, to somebody for instruction.* Now, this whole thing comes right in line with the business of selling secrets or recipes or instruction. Let me repeat: All that is valuable in agriculture or mechanics is very soon published in book form; and any thing *new* pertaining to rural affairs is almost always to be found in our agricultural periodicals. Suppose, for instance, you send some stamps, 30 or 40 cents, for directions for making a homemade windmill. You get in return instructions on a piece of paper, generally one page of reading-matter; or even if it were three or four pages, they do not cost the man who sends them more than a cent a sheet. For the amount of money you send, you ought to have a considerable-sized book on the subject. Another thing, these home made windmills are generally practicable only where the wind comes from a certain direction almost every day; and the mill will not run unless the wind is very nearly in that certain direction. The Nebraska Experiment Station is now preparing a bulletin on home made windmills. Just as soon as it is ready for distribution our readers will be notified. This bulletin will be worth ever so much more than any of these plans which you get by sending a dollar or a less amount, in stamps.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

GREGORY ON SQUASHES.

In my talk on raising Hubbard squashes, on page 134, I failed to suggest that everybody who proposes to raise squashes ought surely to have Gregory's squash-book. It will pay you to have the book, even if you raise only a few hills in your garden; and the exhortations laid down by that veteran gardener will apply to raising almost any sort of crop by high-pressure gardening; and, besides, it is such interesting reading that any one who will pick it up will be almost sure to read it through from beginning to end. I like to read it through once in two or three years to remind me of things I knew already, but had neglected to keep in mind. We now offer the book at the reduced price of 20 cents. Postage 5 cts. extra, if wanted by mail. See revised book-list.

TURKEYS, AND HOW TO GROW THEM.

The above is the title of a beautiful new book just out from the O. Judd Co. In fact its date is as late as 1897. In the frontispiece we have a picture of the American wild turkey, and the book is fully illustrated all through. It has 160 pages, 12mo, and is handsomely bound in cloth. The cuts are, the greater part of them, photographs from nature. The book seems to cover the whole subject, not only of raising turkeys on the farm, but turkey-raising as a business. Price, postpaid, $1.00. It can be ordered from this office, if more convenient. This reminds me that Salt Lake Valley is one of the greatest places for turkey-raising, perhaps, in the world. They will thrive and grow fat on alfalfa, and you can get a "turkey-dinner" in Phœnix, better served, and cheaper, than perhaps in any other city in the United States.

ALL ABOUT PARSNIPS.

To-day they are quoted in the Cleveland market at $1.75 to $2.00 a barrel, and scarce at that. Now, friends, on suitable soil you can raise them for 15 or 20 cts. a bushel, and make money at it. You do not have to guard them from frost as you do potatoes, squashes, onions, and almost every thing else. You just grow your crop and let them stand right in the ground, and dig them whenever there is the best demand for them. The season for selling is from November till May; and any time during the winter when there happens to be a thaw they may be dug and sent off to market. They are a very easy crop to raise. You want to get the seed in very early, so as to have them get a good start before most of the weeds germinate at all. You need not be afraid of frost; and after you get the plants two or three inches high they will take care of themselves. You need a deep, rich, bottom land to grow them—not too much muck, or the parsnips will be spongy and of poor quality. The soil should be sandy enough so the roots can make good shape without having so many prongy ones. In case there should be a surplus (which seldom happens), parsnips are almost always worth more than they cost, to feed to stock. Cattle, horses, pigs, and almost all domestic animals, will eat them greedily. Just now we are getting 3 cts a lb. for them; and our man who drives the wagon says, "we do not need to advertise parsnips—just say you have got them, and they will sell fast enough." Now, if you want to go into the parsnip business we can give you a lift; for we have just purchased a two-bushel bagful of the very best seed, and we are making the lowest prices on it that we ever heard of: Oz., 5c.; 1 lb., 25c; 5 lbs., $1.00; 10 lbs., $1.50.

WANTED—BLISS RED TRIUMPH POTATOES.

While almost every other kind of potato is offered at very low prices indeed, no one seems to have any of the Triumphs, and yet they were the standard table potato for many weeks last summer, and Triumphs were quoted in almost every northern city. They were shipped in from the South, and were the standard early table potato. Now, if nobody has saved any of the seed so that it can be sold at a reasonable price, it is a mistake somewhere. Of course the *White* Bliss is just as good, and, in fact, a little better *looking;* but it is of recent date, and, of course, high priced. Is it possible that our potato-growers were so crazy after new sorts that they neglected to plant this well-known staple and standard variety? I have noticed for several seasons, that when new potatoes first make their appearance, Triumphs are quoted everywhere at the highest price of any variety. In fact, they are so well known that in market reports they do not say "potatoes" at all—just Triumphs, so much a barrel. Now, may be somebody has a big lot of these saved up. If so, and such party can offer them at the prices that other standard early potatoes are selling—say $1.50 a barrel—there ought to be a good demand for them right off. In fact, in many places they are ready to be planted.

THE AMERICAN COFFEE-BERRY.

There is just one thing more we want; and that is the American coffee-berry, at a reasonable price. It has been long enough before the American people so somebody ought to have a stock. I should like the job of raising them at $1.00 a bushel—that is, if I could get the seed to plant at a reasonable figure. I think they have all the advantage of the ordinary soja bean; and, besides this, they are quite a little better for coffee. The beans ripen so early that it is an easy matter to grow them here at the North, and get them matured before frost. We are offering the seed in 5-cent packages; but our stock is so limited that we shall soon be sold out.

---

* We have just received instructions for making a home-made windmill, for which we sent 36 cents in stamps. The instructions are on a single sheet of paper, printed on one side, and they are really an advertisement for a set of castings for making a windmill. The castings cost $4.00. The mill, when it is made, does not turn to face the wind at all. You have to wait till the wind blows in the right direction to have the mill pump water. Still further, and of much greater importance, there is no device of any sort to stop the mill or to turn it out of the wind during a gale—nothing, in fact, to prevent the thing from being blown to pieces at the very first moderate blow.

A Dollar Saved

is better than one earned. Read my 37th annual catalog, and don't send out West for goods you can buy cheaper here at home.

I have added 2400 feet of floor-space to my store-house and shall keep in stock Root's polished one-piece sections. Dovetailed hives, new Weed foundation, etc., in addition to my old line.

Best breeds of bees and queens at bottom prices. Don't buy until you see what you can do with me.

W. W. CARY, Colrain, Mass.

☞In responding to this advertisement mention GLEANINGS.

Our Prices are Worth Looking at!

IN THE

New Champion Chaff Hive Especially.

All other supplies accordingly. Send for catalogue and price list. Address, mentioning GLEANINGS.

R. H. SCHMIDT & CO., Box 187, Sheboygan, Wis.

Look Here! Do you need queens? the purest and best. If so, we are prepared by return mail to ship the 3 band and golden Italians, and silver gray Carniolans, untested, warranted purely mated, for 50c; tested, 75c; breeders $2.25.

JUDGE E. Y. TERRAL & CO., Cameron, Texas.

BEE SUPPLIES FOR SALE AT A REDUCTION. Consisting of comb bucket, Novice extractor, wax-extractor, bee-tent, Manum swarm catcher, all in good condition, and not used much, the latter named not used at all. **FRANK T. HOOPES,**
E. Downington, Chester Co., Pa.

One Cent Invested in a postal card will get my large catalogue of all Root's goods. Can save you money. **M. H. HUNT,**
Bell Branch, Mich.

MUTH'S HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
ROOT'S GOODS AT ROOT'S PRICES,

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. **"Practical Hints"** will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

BETSCHERS' BULBS and PLANTS GROW and BLOOM.

Gladioli our specialty—200 kinds

Send for our Catalog of Big Bargains.

10 Extra Choice Gladioli or 1 Gold Band Lily, 15c. 6 Tuberoses, Chrysanthemums, Geraniums, or roses, 25c. **Betscher Bros., Florists, Canal Dover, O.**

☞In responding to this advertisement mention GLEANINGS.

HEAR ME!

Early Mammoth corn, 30 varieties of new choice potatoes, garden seeds, bee-fixtures. Packet Chartier radish and catalog free.

J. F MICHAEL,
BOX R, GREENVILLE, OHIO.

☞In responding to this advertisement mention GLEANINGS.

Early Queens By Return Mail.

Best tested Italians, $1.00 each. Queens are vigorous, healthy, and prolific. The workers are unsurpassed as honey-gatherers. Send for price list.

J. W. K. Shaw & Co., Loreauville, La.

For Sale.

500 swarms of bees, at $3.00 each f. o. b. Sickness the cause of going. The business must be sold. Will sell lot, buildings, and all pertaining thereto if desired. **I. W. HOUSE, Chittenango Falls, N. Y.**

Strawberries! Strawberries! Strawberries!

If you want the finest and largest berries of the following varieties, send me a trial order: Haverland, Crescent, Lovet, and Burt. $3.00 per 1000; 50c per 100. **F. B. YOCKEY, Paulton, Pa.**

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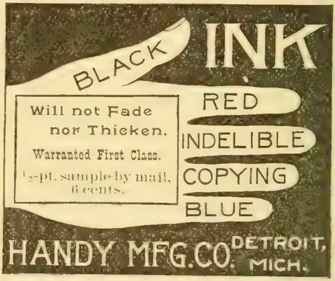

Will not Fade nor Thicken.

Warranted First Class.

½-pt. sample by mail, 6 cents.

HANDY MFG. CO. DETROIT, MICH.

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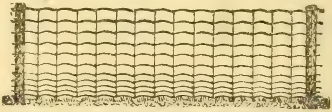


STRONG ENDORSEMENT

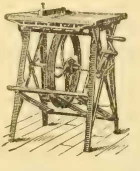
"In the spring of '88 I put up 600 rods. I have never had to repair it from that day to this. In '90 I put up about 300 rods, with equally good results. There is no reason why a **Page** fence will not stand 20 years without any expense for repairs."

WILL W. SHEPARD.

Honeoye Falls, N. Y. (in letter Jan. 18, '97) to

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

☞In responding to this advertisement mention GLEANINGS.



Read what J. I. PARENT, of Charlton, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby Street, Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to

THE A. I. ROOT CO., Medina, O.

☞In responding to this advertisement mention GLEANINGS.

POULTRY SUPPLIES

Our New 1897 Illustrated Live-stock and Poultry-supply Catalogue

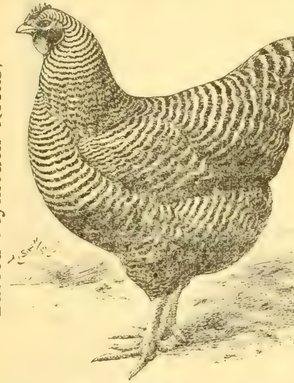
is "up to date." Many new kinks in poultry culture are suggested and illustrated and no LIVE "chickener" should fail to see it. Has BEE FIXINGS too.

What is YOUR NAME?
Where do you live?

JOHNSON & STOKES,
SEEDSMEN,
217 & 219 MARKET ST.,
PHILADELPHIA, PA.

☞ In writing advertisers please mention GLEANINGS.

Barred Plymouth Rocks,



S. C. Brown Leghorns, Lt. Brahmas.

LADY MARTHA WASHINGTON.

The illustration presented above represents one of the most remarkable B. P. Rock hens ever produced. She was hatched and raised by J. W. Whitney, of Chatham, Ohio. Is now four years of age, and has won the following list of prizes:

1st prize at Washington, D. C., Jan. 12-16, 1897.
1st " Hagerstown, Md., October, 1896.
2d " West Chester, Pa., October, 1896.
2d " Reading, Pa., October, 1896.
2d " Toledo, Ohio, January, 1896.
2d " Medina, Ohio, December, 1895.
3d " Medina, Ohio, January, 1895.

To those of our readers who are interested in poultry we would say Mr. Whitney's circular contains a full description of his fowls and valuable information as well. It is free. Write for it.

Please mention this paper.

Sweet Potatoes.

½ pk. G. C. Prolific, ½ pk. G. Grant, 3 pks. Yellow Jerseys, all for ONE DOLLAR. Here is an opportunity to try the *new vineless* varieties at a small cost.
J. Q. MULFORD, Lebanon, Ohio.

Poultry.

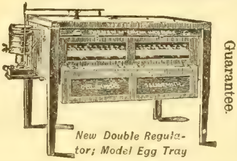
P. Rocks, L. Brahmas, P. Cochins, Leghorns, Wyandots, Bronze Turkeys, Toulouse Geese, Pekin ducks. **500 fowls for sale.** Largest breeder in Ohio. Bargains for 30 days. Write at once for price list.

CHAS. M'CLAVE,
New London, Ohio.

Please mention this paper

Do You Want An Incubator?

An Honest Machine, Honestly Built,



New Double Regulator; Model Egg Tray

Sold Under a Positive Guarantee.

"NEW AMERICAN."

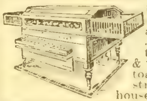
Want Our Catalogue?

It's a pretty book of 68 pages, finely illustrated; worth dollars to every poultryman. A 2c stamp gets it.

GEO. J. NISSLY, SALINE, MICH.

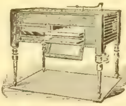
Please mention this paper.

A GOLD DOLLAR



is about the actual worth of our new book on Incubation and Poultry. Contains a full and complete description of the Reliable Incubator & the Brooder of same name, together with cuts and instructions for build'g poultry houses and much of interest and great value to the poultryman. Sent on rec't of 10c.
RELIABLE INCUBATOR & BROODER CO.-QUINCY-ILLS.

Please mention this paper.



LIFE PRODUCERS

THE SUCCESSFUL INCUBATORS.

LIFE PRESERVERS

THE SUCCESSFUL BROODERS.

All about them in our catalogue.
——Sent for 6 cents.——

DES MOINES INCUBATOR CO., Box 503 DES MOINES, IA.

Please mention this paper.

HATCH Chickens BY STEAM—

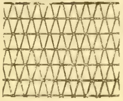
With the **MODEL EXCELSIOR Incubator**

Circulars free. Send 6c. for Illus. Catalogue.

Simple, Perfect, Self-Regulating. Thousands in successful operation. **Lowest priced first-class Hatcher made.**
GEO. H. STAHL.
114 to 122 S. 6th St. Quincy, Ill.

Please mention this paper.

WOVEN WIRE FENCE



Best on Earth. Horse-high, Bull-strong, Pig and Chicken-tight. With our DUPLEX AUTOMATIC Machine you can make 60 rods a day for

12 to 20 cts. a Rod.

Over 50 styles. Catalogue Free.
KITSELMAN BROS.,
Box 51. Ridgeville, Ind.

Please mention this paper.

GAMES FREE & useful articles for only 2-6mo. subs. to PoultryKeeper at 25c. Every poultry raiser wants this leading poultry paper. Sample free. Address POULTRY KEEPER CO., Box 63 Parkesburg, Pa.

Columbia Bicycles

"A thousand dollars would not buy a better bicycle than the Columbia---nor 'just as good' ---because none so good is made."

$100 TO ALL ALIKE

Hartfords are next best, $75, $60, $50, $45

POPE MFG. CO., Hartford, Conn.

Greatest Bicycle Factory in the World. More than 17 Acres Floor Space.

Branch House or dealer in almost every city and town. If Columbias are not properly represented in your vicinity, let us know.

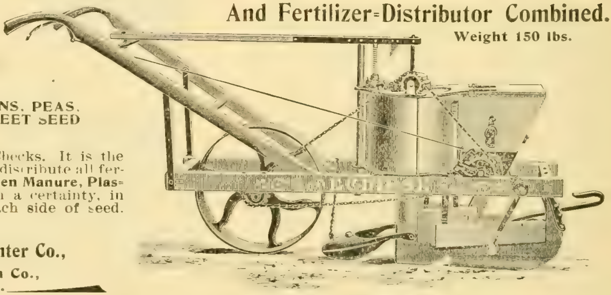
You should know about bicycles. Send for the handsomest bicycle Catalogue ever issued. Free if you call at any Columbia dealer; by mail from us for one 2-cent stamp.

B. Hendrickson, Agent.
Medina, Ohio.

ECLIPSE CORN-PLANTER

And Fertilizer-Distributor Combined.

Weight 150 lbs.



WILL PLANT.....

CORN, BEANS, PEAS, and BEET SEED

in Hills, Drills, and Checks. It is the only planter that will distribute all fertilizers, **Wet or Dry, Hen Manure, Plaster, Ashes, Etc.**, with a certainty, in different amounts, each side of seed. Send for circulars.

Eclipse Corn-Planter Co.,
Enfield, Grafton Co.,
New Hampshire.

Gardeners, Try Our Specialties.

Everbearing Strawberry—June till October 40c per dozen; $2.50 per hundred, postpaid.
Hood River Strawberry—best shipping—35c per dozen; $2.00 per hundred, postpaid.
Oregon Yellow Danvers Onion—largest yielder and best keeper known 90c per pound; 5 pounds to one address, $3.25, postpaid.
Oregon Hubbard Squash—best yet—$1.00 per pound.

BUELL LAMBERSON, SEED STORE, PORTLAND, ORE.
NORTHWESTERN AGENT ROOT'S BEE-SUPPLIES.

BIG BARGAINS in ROSES, PLANTS and SEEDS.

Grand SET of 13 Elegant Ever-blooming ROSES for only 50 cts. by mail, post-paid, safe arrival and satisfaction guaranteed.

La France, light pink, everybody's favorite. **The Queen,** pure white. **Cleopatra,** lovely shell pink **Beaute Inconstante,** amber rose and yellow. **Coquette de Lyon,** deep golden yellow. **Chas. Legrady,** red shading to darkest crimson. **Victor Hugo,** bright pink and carmine. **Augusta Victoria,** the best white rose **Maman Cochet,** rosy pink and silver, lovely. **Md. Scipion Cochet,** will produce more roses than any other variety **Henri Rignon,** Coppery yellow, center lake red. **Princess Sagan,** richest velvety crimson. **Bridesmaid,** the best of all pink roses.

What You Can Buy for 50 Cents.

Set 34—**13** Ever-blooming Roses all different **50 c.**
" 35—**12** Fragrant Carnation Pinks, 12 kinds. **50 c.**
" 36— **8** Lovely Flowering Begonias, all sorts. **50 c.**
" 37—**13** Geraniums, all colors and kinds, . **50 c.**
" 38—**15** Choice Prize Chrysanthemums, . **50 c.**
" 39— **4** Choice Decorative Palms, try them, **50 c.**
" 40— **5** Dwarf French Cannas, 5 kinds, . . **50 c.**
" 41—**12** Sweet Scented Double Tube Roses, . **50 c.**
Set 42—**20** Large Flowered Pansy Plants, . . **50 c.**
" 43—**15** Coleus, will make a bright bed, . . **50 c.**
" 44—**12** Double and Single Fuchsias, all colors, **50 c.**
" 45— **6** Choice Hardy Shrubs, 6 sorts, . . **50 c.**
" 46—**30** Pkts Flower Seeds, no two alike, . **50 c**
" 47—**20** Pkts elegant Sweet Peas, all different **50 c.**
" 48—**18** Pkts Choice Vegetable Seeds 18 sorts **50 c.**

You may select half of any two sets for 50 cents, or 3 complete sets for $1.25, any 5 sets for $2.00, the entire 15 sets for $5.00; or half of each set for $2.50 Get your neighbor to club with you. Our catalogue free. **ORDER TO-DAY.** We will hold the plants and ship them any time you may desire. Address.

THE GREAT WESTERN PLANT CO., BOX 51, SPRINGFIELD, OHIO.

The Cultivator,

Published semi-monthly at Omaha, Nebraska, is the leading authority on fruit grown in Nebraska, and on general agriculture in the West. Send for sample copy and free strawberry-plant offer. Address

The Cultivator, Omaha, Neb.

Good Plants Cheap.

Palmer raspberry-plants,	50c per 100,	$4.00	per 1000
Gregg " "	50c "	4.00	"
Wm. Belt strawberry,	75c "		
Brandywine "	75c "	5.00	"
Glen Mary "	30c per doz.		
Bubach "	75c per 100,	2.50	"
Tennessee Prolific,	75c "		

DAN WHITE, New London, Ohio.

1500 Bbls. Sweet-potato Seed.

Yellow Jersey, Carolina, and Nansemond, selected size, $2.50 per barrel; 2d size, $1.75 per Bbl.
Red Jersey and R. Nansemond, 2.50 "
Red Bermuda and Red Spanish, 2.75 "
South. Queen and Bahama White, 2.75 "
Vineless or Gold Coin Prolific, 4.00 "
Discount of 25c per bbl. on 5 bbl. lots.
Send for free circulars. Adddress

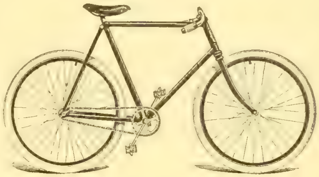
L. H. MAHAN, Box 143.
Terre Haute, Ind.

Manum's Enormous.

The greatest-yielding potato on earth, They lead all at several experiment stations. Prices low. Potato and Queen circulars free.

A. E. MANUM,
Bristol, - Vermont.

1897.



Cleveland Bicycles.

Every piece and part of the Cleveland Bicycle is made in our own factories by the best of skilled workmen, under most rigid inspection. The result is a Bicycle embodying, in a marked degree, features of safety, speed, and durability.

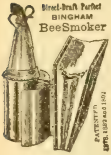
THERE'S HONEST VALUE IN IT.

We want the patronage of intelligent and discriminating buyers. 1897 catalog mailed free for the asking.

H. A. LOZIER & CO.,
Cleveland, Ohio,

Send 4 cents postage for our booklet, "Shakespeare and the Bicycle." Twelve illustrations in colors by F. Opper, of "Puck."

PRICES OF Bingham Perfect Bee-smokers and Honey-knives.



Smoke Engine (largest smoker made.)	4 in. stove.	Dozen, $13.00;	each, by mail,	$1.50
Doctor	3½ "	" 9.00;	" "	1.10
Conqueror	3 "	" 6.50;	" "	1.00
Large	2½ "	" 5.00;	" "	.90
Plain	2 "	" 4.75;	" "	.70
Little Wonder (wt. 10 oz.)	2 "	" 4.50;	" "	.60
Honey-knife		" 6.00	" "	.80

Bingham smokers are stamped on the metal, Pat. 1878–1892—Knives, B & H.

Bingham & Hetherington Uncapping-knife. Pat May 20, '79.

The four larger sizes have extra wide shields and double-coiled steel-wire handles. These **shields and handles** are an **amazing comfort**—always cool and clean. No more sooty nor burnt fingers. The plain and Little Wonder have narrow shields and wire handles. All Bingham smokers have all the new improvements, viz.: Direct draft, movable bent cap, wire handles, inverted bellows, and are **absolutely perfect.** With a Bingham Smoker that will hold a quart of sound maple wood the bee-keeper's trials are over for a long time.

Who ever heard of a Bingham Smoker that was too large, or did not give perfect satisfaction? The world's most scientific and largest comb-honey producer uses Bingham Smokers and Knives. The same is true of the world's largest producer of extracted honey. Before buying a smoker or knife hunt up its record and pedigree.

T. F. BINGHAM, Farwell, Michigan.

Our New Catalog is Now Ready.

Send us your name and address, and we will take pleasure in mailing you a copy **Free.**

It Illustrates and Describes all the

Latest and Best Apiarian Supplies.

G. B. LEWIS CO., Watertown, Wisconsin.

75cts.

Send this Coupon and 25 cts. for

TEXAS FARMER (Dallas) ONE YEAR.

Agricultural, Literary, News, and Family Paper. Sample free.

Just Arrived!

My first carload of goods from **The A. I. Root Co.** has arrived, and I am in shape to fill all orders promptly at their catalog prices. Send for my 36 page catalog; also send a list of what goods you will need, and I will make you special prices on early orders.

GEO. E. HILTON,
Fremont, Mich.

Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. **Honest Goods at Close Honest Prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Bee-hives, Sections, & Bee Supplies

AWAY DOWN.

Queens and bees for 1897 at bottom prices.
Write for catalogue and prices.

CHAS. H. THIES, Steeleville, Ill.

CALIFORNIA.

Mountain bee ranch for sale. Good location; telephone connection with three railroad stations.

D. O. BAILLIFF, Banning, Cal.

Bargains in Second-hand Bicycles.

We have on hand two ladies' Defiance bicycles, made by the Monarch Cycle Co., of Chicago, and listed at $75.00. These are last year's models, and were used by the women of Rootville last season. The two machines are in first class running order; and as they were ridden but little they are practically as good as new. They have Garford spring saddles, reversible handle-bars, 1⅛-inch tubing, Morgan & Wright quick-repair tires. Weight, 25 lbs. each. Catalogs and particulars will be furnished on application. We will re-enamel them, and sell them for $35.00 each, or the two for $67.50. Beeswax or honey at market prices will be accepted in payment. Reason for selling—we are going to have a tandem instead for '97.

A $100 Rambler Racer bicycle for $35.00 cash, or $40.00 in trade for wax or honey at market quotations. The wheel weighs only 20 lbs; has a new set of Rambler clincher tires, and is almost as good as new. It was ridden by A. I. Root during part of '96, and is just the bicycle for a boy or light-weight man. Further particulars given by applying to

The A. I. Root Co., Medina O.

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SUSPENSORY
SUPPORTS

and protects the scrotum, and should be worn in every case where there is any drooping of the scrotum. It is especially recommended to wheelmen, equestrians, base-ball, foot-ball, and lawn-tennis players, athletes, men doing heavy work, much walking or standing, etc. Ask your physician's advice about wearing a Suspensory—perhaps it will relieve your backache. Our $1.00 grade is very popular, and your dealer, or we, will sell you one and refund money if not perfectly satisfactory. For sale by all druggists and dealers in athletic goods. Send for price list. A. J. WELLS MFG. CO.,
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And with small freight charges.

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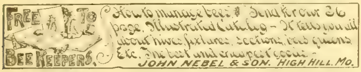
JOSEPH NYSEWANDER, Des Moines, Iowa.



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COLUMBIAN RASPBERRY, $2.50 per doz; currant, gooseberry, grapevines, $1.00 per doz., prepaid; chestnut and English walnut, 25c each, prepaid; Pearl gooseberry, 50c each.
T. G. ASHMEAD NURSERY, Williamson, N. Y.

WANTED.—To exchange Japan plum trees for extracted honey or offers. Abundance, Burbank, and Satsuma; 5 by mail, 60c.
JOHN CADWALLADER, North Madison, Ind.

For Sale.

At only $3.00 per hive, fine Italian bees with good queens.

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LIMA, ILLINOIS.

Wants and Exchange Department.

WANTED.—A young man of 23 years wants to take care of bees this coming season for wages or on shares, in this or any adjoining State, or California. Have had successful experience. Ref. given. Write at once. Address R T STINNETT,
Central Business College, Denver, Col.

WANTED.—To exchange nice comb honey for thin foundation. L. WERNER, Edwardsville, Ill.

WANTED.—Ten nuclei; also Craig Seedling potatoes at Root's prices for sale. Address
P. M. BYERLY, Farley, Dubuque Co., Iowa.

WANTED.—To exchange 60 York Imperial and 125 Yellow Transparent apple trees, two years old in the spring, from whole-root grafts, valued at 8 and 10 cts. each; also about 60 bushels white soup beans, valued at 60 cts. per bush., for two tested Italian queens, an A B C book, smoker, etc., this spring. GEO. E. COON, Farina, Ill.

WANTED.—To exchange for bees or offers, "registered" Jersey cow, butcher tools, foundation-mill, bone-mill, double buggy, new cutter, and Light Brahma chickens. Address
ELIAS FOX, Hillsboro, Wis.

WANTED.—To exchange a new Barnes Combined Machine, with some special attachments for bee-hive work. What have you to offer in exchange?
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WANTED.—To exchange Italian queens, bred from imported mothers, for plants, seeds, pet stock, or Cowan extractor. What have you to offer?
J. H. GARRISON, 1011 N. 23d St., St. Louis, Mo.

WANTED.—To exchange camera, roller organ and music, books, curios, Florida and Alabama town lots, rubber-type outfits, clothing, jewelry, watch, magic-lantern, skates, for ladies' bicycle, talking-machine, bees, supplies, and honey.
W. I. COOK, Haledon, N. J.

WANTED—To trade pear-trees, Gault, Loudon, and Columbian raspberry-plants, for watch, shot-gun, feed-mill, buggy harness, musical instruments, camera, sheep, geese, turkeys, greyhound, Newfoundland, or offers. J. MCQUEEN, Baltic, O.

WANTED.—To exchange Belgian hares, homing pigeons, White Leghorn eggs or breeding-stock for Italian queens from imported mother, pure-bred geese, ducks, or ducks' eggs, or offers.
EUGENE MANNING, Jacksonville, N. Y.

WANTED.—To exchange pure Bronze turkeys or Pekin ducks for new double harness; also want pair deer and wild geese. CHAS. MCCLAVE,
New London, Ohio.

WANTED.—To exchange strawberry plants—Gandy, Great American, Parker Earle, Sharpless—and raspberry plants—Golden Queen, Cuthbert, and Marlboro—for nice comb or extracted honey.
DAN'L LEIBE, Cherry Hill, Bergen Co., N. J.

WANTED.—To exchange 2000 Ohio and Hopkins raspberry plants, valued at $6.00 per 1000, for extracted honey or comb foundation.
R. G. ROBERTSON, Marshall, Mo.

WANTED—To dispose of part or all our bee interest here, consisting of supplies and bees to run three apiaries of 100 colonies each. Famous health resort on Cumberland Plateau; best society, plenty of bee-forage. What have you to offer in exchange? THOS. C. STANLEY, Monteagle, Tenn.

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WANTED.—Canvassers to solicit orders for my permanent crayon portraits. Good wages assured. Write for particulars. W. A. BALDWIN,
Portrait Artist, Medina, Ohio.

WANTED.—To exchange 60-lb. cans in good order, valued at 25 cts. each, delivered, for comb or extracted honey at the market price.
B. WALKER, Evart, Mich.

WANTED.—To exchange bees in Root's chaff hives, for band-saw, or planer and matcher, or bicycle. M. LUDTMAN, Hannibal, Monroe Co., O.

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Set out a bed now. It will produce for ten years. 100 roots, best variety, for $1.00 postpaid; 1,000 by freight, $3.50, with cultural directions. Large illustrated Seed Catalogue and Special Bargain List free if you mention this paper.

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Helianthus, New Double Multiflora.—Perfectly double golden sunflowers.

Cosmos, New California Monsters.—The glory of the autumn flower garden.

One packet of each of the above six Beautiful Annuals, which at catalogue prices amount to 65 cts., sent postpaid for only 15 cts.

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1711 Filbert St., Philadelphia, Pa.

Yell, O Yell, O'YELLOWZONES.
YELLOWZONES for PAIN and FEVER.

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Honey Column.

CITY MARKETS.

Kansas City.—*Honey.* No. 1 white, 12@13; fancy amber, 11@12; No. 1 amber, 10@11; fancy dark, 9@10; No. 1 dark, 8@9; white extracted, 5@5½; amber, 4½@5; dark, 4@4½; beeswax, 25.

C. C. Clemons & Co.,
March 3. 423 Walnut, Kansas City, Mo

New York.—*Honey.*—Fancy white, 11; No. 1 white, 10; fancy amber, 9; No. 1 amber, 8; fancy dark, 6½@7; No. 1 dark, 6; white extracted, 5@5½; amber, 4½@5; dark, 3½@3¾; beeswax, 27@28. Comb honey has sold fairly well of late, and we succeeded in moving off quite a bit of our stock and think we will be able to close out all of it before April 1. Extracted is moving slow, except buckwheat, which is in good demand. Beeswax quiet at 27-28c per lb. for good average quality.

Hildreth Bros. & Segelken,
March 9. 28 & 30 W. Broadway, New York.

Minneapolis.—*Honey.*—Fancy white, 12@13; No. 1 white, 10@12; fancy amber, 9@10; No. 1 amber, 8@9; fancy dark, 7@8; No. 1 dark, 6@7; white extracted, 6@7; Utah white, 5@5½; amber, 5@6; dark, 4@5; beeswax, 22@25. Market quiet and without change.

S. H. Hall & Co.,
March 3. Minneapolis, Minn.

Milwaukee.—*Honey.*—Fancy white, 12@14; No. 1 white, 11@12; fancy amber, 10@11; fancy dark, 8@10; white extracted, 6@7; amber, 5@5½; dark, 4@5; beeswax, 25@27. The receipts of honey continue fairly good. The supply is fair, and quality very good. The best quality sells best. Because the trade is somewhat slow some receivers seem to think the way to sell is to *slaughter* prices. Yet the market is fairly sustained and we think all will work off at fair rates before the new crop comes again.

A. V. Bishop & Co.,
March 9. Milwaukee, Wis.

Columbus.—*Honey.*—Fancy white, 12@12½; No. 1 white, 11; fancy amber, 9.

The Columbus Com. & Storage Co.
Feb. 23. 409-413 N. High St., Columbus, O.

Cincinnati.—*Honey.*—No. 1 white, 12@13; No. 1 amber, 10@12; white extracted, 5@6; amber, 4@5; dark, 3¼@4; beeswax, 22@25. Demand is slow for extracted and comb honey, with a fair supply. Dark comb honey seems to be unsalable. There is fair demand for beeswax, with a fair supply.

Chas. F. Muth & Son,
March 9. Cincinnati, O.

Boston.—*Honey.*—Fancy white, 13; No. 1, 11@12; fancy amber, 10; white extracted 7@8; amber, 6; dark, 5; beeswax, 25. The demand is light for honey, with a good supply.

E. E. Blake & Co.,
March 9. 57 Chatham St., Boston, Mass.

Albany.—*Honey.*—Fancy white, 12@13; No. 1 white, 11@12; fancy dark, 7@8; No. 1 dark, 6@7; white extracted, 5@6; dark, 3½@4. There has been quite a good demand for comb honey lately, and stock very much reduced, especially clover. Extracted still moves slowly but should improve soon.

Chas. McCulloch & Co.,
Feb. 26. Albany, N. Y.

San Francisco.—*Honey.*—Fancy white, 9@10; No. 1 white, 8@9; fancy amber, 6½@7½; No. 1 amber, 6@7; fancy dark, 5@6; No. 1 dark, 4@5; white extracted, 5@5½; amber, 4@4¾; dark, 2½@3½; beeswax, 22@25. Honey and beeswax both quiet. Stocks are light.

Henry Schacht,
Feb. 29. San Francisco, Cal.

Philadelphia.—*Honey.*—No. 1 white, 8; fancy amber, 7; No. 1 amber, 6@6¾; fancy dark, 6; No. 1 dark, 5@6; white extracted, 5@6; amber, 5; dark, 4; beeswax, 26. Our honey market is very low with some call, but a big supply. We will not buy or sell on commission any more this season. White-clover extracted always in demand, which we are buying constantly. If you have any, send sample.

Wm. A. Selser,
March 11. No. 10 Vine St., Philadelphia, Pa.

Detroit.—*Honey.*—Fancy white, 11@12; No. 1 white, 10@11; fancy amber, 9@10; No. 1 amber, 8@9; fancy dark, 7@8; white extracted, 5@6; amber, 4@5; beeswax, 24@25. There is more comb honey in commission houses than I think can be closed out before new crop, and prices rule lower.

M. H. Hunt,
March 12. Bell Branch, Mich.

Chicago.—*Honey.*—Fancy white, 11@12; No. 1 10; fancy amber, 9; No. 1 amber, 7; fancy dark, 7@8; No. 1 dark, 6@7; white extracted, 5@7; amber, 5@6; dark, 4@5; beeswax, 25@27. For all bee products, with exception of beeswax, there is a slow market, with ample stocks.

R. A. Burnett & Co.,
March 9. 163 So. Water St., Chicago, Ill.

For Sale.—$25.00 for one 500-lb. barrel of A No. 1 linn extracted honey, F. O. B. cars here; or 5½c in packages of 60 lbs. each. J. B. Murray, Ada, O.

For Sale.—6000 lbs. extracted honey, in new cans and cases, $350.00. Speak quick; who wants it? Elias Fox, Hillsboro, Wis.

Wanted.—To buy quantity lots of amber honey in 60-lb. cans or bbls. The price must be low, and samples will be required. B. Walker, 541 Van Buren St., Chicago.

Queens, Queens, Tested.

I have Italian queens, either golden or dark queens from imported stock—good queens reared late in season of 1896, at $1.00 each. Ready to mail the first of April. **W. A. Compton, Lynnville, Tenn.**

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At Beeville, Texas, 200 colonies of first-class Italian bees. $600 cash for lot to close out. Address S. A. Leeds, Avery Island, Louisiana.

Early Queens, northern raised. Queens tested raised last fall are hardy and prolific; $1.25 per return mail. Untested, in April, $1.00. I insure safe arrival.
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Falmouth, Rush Co., Ind.

Golden, Adel, Albino. **Texas Queens.** Dr. Gallup says they are the best he has in his yard.
J. D. GIVENS, Lisbon, Texas.

Bee-hives, Sections, & Bee Supplies AWAY DOWN.
Queens and bees for 1897 at bottom prices. Write for catalogue and prices.
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☞ Send for it. CATALOG FREE TO ALL.
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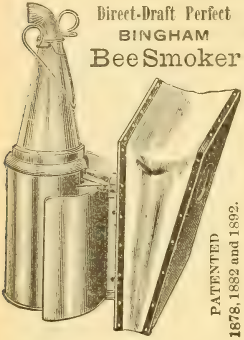
Large stock, extra strong, 2 years old, 20 bushes for $1, or $4 per 100; 1 year old, 25 bushes for $1, or $3 per 100. **FRED H. BURDETT, Clifton, N. Y.**

If You Want to Know

HOW to run out-apiaries for comb honey with almost no swarming, read the December **Bee-keeper's Review.** If you want to know the method followed by Mr M. M. Baldridge in securing drawn combs for use in the sections, read the January **Review.** If you would know how to make a home-made foot-power buzz-saw, the equal of any foot-power saw made, read the illustrated article, by the editor of the **Review,** on this subject in the January **Review.** If you want a journal that is up with the times and full of practical information that will help you in making money in the apiary, read the **Review.** It is $1.00 a year, but if you are not already a subscriber see the special inducements offered to new subscribers in the advertisement that occupies this position in GLEANINGS for Feb. 15.

W. Z. HUTCHINSON, Flint, Mich.



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Large	2½	"	"	5.00;	"	"	.90
Plain	2	"	"	4.75;	"	"	.70
Little Wonder (wt. 10 oz.)	2	"	"	4.50;	"	"	.60
Honey-knife			"	6.00;	"	"	.80

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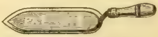

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Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer, I write for a circular. I do not think the 4-inch Smoke Engine too large.
Jan. 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.

T. F. BINGHAM, Farwell, Michigan.

Root's Goods at Root's Factory Prices At Des Moines, Iowa.

Immense stock of the latest 1897 goods now on hand, and more to follow.

Thousands of Hives and Millions of Sections is our record, and other goods in proportion. We are sure to please you if the best goods at bottom prices and good service will do it. Eleventh annual catalog FREE. Address

JOS. NYSEWANDER, Des Moines, Iowa.

160-page Bee-book FREE.

Bee-book Sent Free with American Bee Journal.

Every *new subscriber* sending $1.00 for the *weekly* **American Bee Journal** for one year will receive a copy of Newman's 160-page "Bees and Honey" free. The old **American Bee Journal** is great this year. You ought to have it, even if you do take GLEANINGS. Sample of **Bee Journal** free. Write for it.

GEORGE W. YORK & CO., 118 Michigan St., Chicago, Ill.

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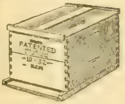

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Francis Danzenbaker, Medina, Ohio.
Care The A. I. Root Company.

Nuclei==Order Now,

of the old reliable queen-breeder, a 2-frame (Hoffman) nucleus and warranted queen (Italian) that we will guarantee will produce a large colony by June, for $2.75.

Direct the Philadelphia branch of

THE A. I. ROOT CO.,
Wm. A. Selser, Mgr. **10 Vine St., Phil., Pa.**

☞A full line of all bee-supplies.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO.

Vol. XXV. MAR. 15, 1897. No. 6.

STRAY STRAWS

FROM DR. C. C. MILLER.

TEN CENTS EACH is the price at which W. Z. Hutchinson thinks he'd like the job of rearing virgin queens, using a lamp-nursery.—*American Bee Journal.*

A HUNDREDWEIGHT OF HONEY contains 32.25 lbs. of carbon, 53.75 lbs. of water in combination, 13 lbs. of water of solution, and about 1 lb. of salts and other matters.

THIN SHEET ZINC is recommended by H. W. Brice in *B. B. J.* as the best covering for hive-roofs. How does it compare in price with tin in this country, Mr. Editor?

"ARE BEES DOMESTIC ANIMALS?" is a question having some discussion in Europe. How is it here? Some nice legal points may at some time happen to hinge upon the answer.

IS A COLONY of bees an organism? is a question over which German bee-keepers are having a high old time. Gerstung and his supporters say it is, while Dzierzon and others scout the idea.

DZIERZON says in *Noerdlinger Bienenzeitung* that starving bees throw out brood after sucking out its juices only after the brood has died from want of heat, but that bees never destroy living brood.

JOHN G. COREY spent $14 for a pump and windmill, and $4 for a watering-trough for his bees, and thinks he'll save it in bees that would be lost going long distances for water.—*American Bee Journal.*

PH. REIDENBACH has discovered that, besides formic acid, vinous acid (*Weinsœure*) is also present in combs. He thinks it helps prevent mold from dampness, and also helps in changing cane to grape sugar.

A NICE SONG that, to the linden, p. 165. Now what do you think? The author of it read a fine paper on ornamental trees, before a horticultural society, enumerating 13 varieties, and never said "linden" once! O Eugene! Eugene!

GRAVENHORST says that, while in most winters bees have enough chance for cleansing flights, no matter what direction they face, yet once in a while there will be a winter when bees not facing south will suffer from too long confinement. Facing south is always safe.

BEES WILL BUILD combs in wired frames just as readily as if no wire were present; and my experience is that they'll not deviate a hair's breadth to make the septum come where the wire is. If the wire happens to be where they want the septum, all right; but if not, all wrong.

A. F. BROWN has at seven different times fed 200 colonies to get a full working force of *field-bees* ready for the *opening* of a given honey-flow, and says, "From this experience I find seven to eight weeks to be nearer right than five or six weeks, as usually given."—*American Bee Journal.*

SIXTY POUNDS of extracted honey per colony, J. McArthur thinks a good average from sweet clover, if it is abundant. R. Stolley thinks five colonies will store more from an acre of sweet clover than would twelve, and estimates 400 to 500 pounds surplus to the acre, if not overstocked.—*American Bee Journal.*

EDITOR BOEHM, of *Deutsche Imker aus Boehmen*, has a colony of bees hanging in the open air that has continued from 1894, having a cloth hung around it in winter. It has twelve combs, the middle one 24 inches deep and 16 inches wide. Last July it cast a swarm of 11 pounds, and an after-swarm of 1½ pounds.

"CAN YOU GET extracted honey from old brood-combs of as fine flavor as that in first-class sections?" is asked in *American Bee Journal.* Nine say yes, seven say no. The same question would hardly have had so many negative answers five years ago. [In five years more the answers would all have been negative.—ED.]

GERMAN BEE-KEEPERS don't know much about extremes of temperature if they all have the weather reported in *Centralblatt.* In 1896 the hottest day showed 78° F., against 100°

here; and the coldest day was 12° above zero against 20° below here. The range in Germany for the year was 66°, about what we sometimes have here in two days' time.

FREE ADVERTISING in *American Bee Journal* is given to John A. McCutcheon & Co., Chicago, Williamson Produce Co., New York, and Unger & Co., Buffalo, classing them with Horrie and Wheadon. Editor York sensibly remarks, "Far better to donate your honey to some orphanage and be done with it, than to give it to dealers of no reputation, or that are not well known."

SIX DIFFERENT COLONIES, according to a report in *Revue des Sciences*, show six different lengths of tongue, 7.1, 7.5, 8.1, 8.4, 8.8, and 9.2 respectively—the last nearly a third longer than the first. Now, if there's so much variation why can't a strain of long-tongued bees be developed? Will my highly esteemed friend, the sage of Lapeer, please answer?

"AVOID MELTING wax over too many times; every time makes it darker-colored. Make the cakes medium-sized, and don't pour into the molds until cooled so it will just run nicely. Wet the dish, and you will not have to grease it. If above directions are followed, your cakes will not crack.—*M. H. Hunt, in American Bee Journal.* [M. H. Hunt, according to our experience, is decidedly right.—ED.]

HOW DOES IT HAPPEN a bee can eat honey for months without becoming overloaded? In winter it eats perhaps three times its own weight without a fly. Well, 99 per cent of honey is oxygen, hydrogen, and carbon; and when that's consumed it turns into vapor of water and carbonic-acid gas, neither of which remains in the intestines. In that light the only wonder is that they become bloated as often as they do.

Ridge-Pole Musings

By R. C. Aikin.

OUR WAGON; HOW AIKIN AVOIDS THE USE OF BEE ESCAPES.

In building this wagon, three things were kept in mind; viz., comfort, capacity, and service. For use on our trip we needed room, and at the same time protection. I will describe the wagon first.

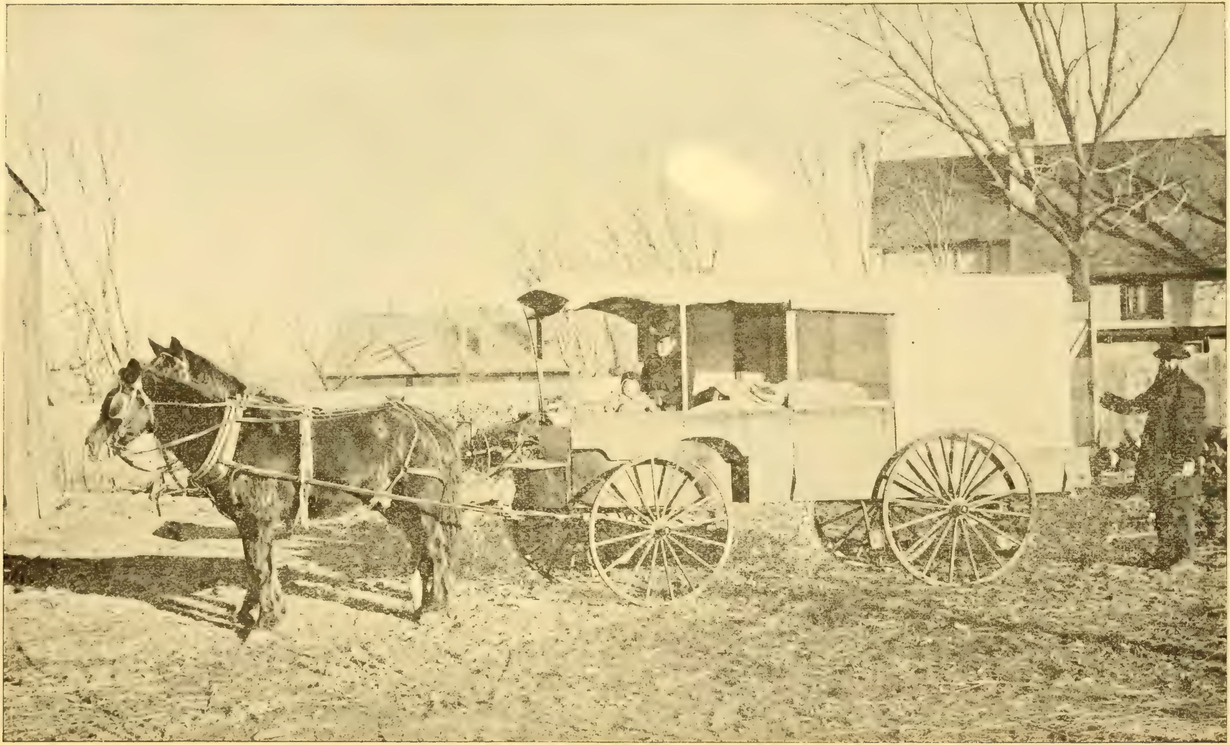
The running-gears are the same that I have been using for my honey express to and from out-apiaries, etc. It is a regular platform spring, and will carry 1000 to 1200 pounds. I usually carried about 1000 on it in moving hives, honey, or bees.

The box now on it is my own invention, gotten up for the trip, and to use as a honey-wagon afterward. It is 13 feet long from front bow to back, and 4 feet wide, outside measure. From the floor to the highest point under the bows is 5 feet 5 inches—bows what are known as square top. The part of the box forward of the hind wheels is about 27 inches deep, and between hind wheels 13½ inches. The sides are ⅞-inch poplar, and the bows are cut square off and set right on top of the sides, and iron plates laid on both inside and out of the lower end of the bows, extending down straddle of the sides, and screwed to the sides. The manner of fastening bows appears very plain in the photo, but may not be so clear in the half-tone. There are 6 bows. The one just in front of the hind wheels goes clear down past the *end* of the side-board that is scalloped over the front wheel (this side-board goes back only as far as the picture shows it), and is stirruped to it, so there is no possible careening back and forth of this bow; and the others, being fastened to it by the slats above, all are rigid.

It is all covered first with 11-oz. duck; then, over the top, oil-cloth. The part of the canvas that is not rolled up on the near side is fastened permanently, covering two spaces between bows. The next space—just front of the hind wheel—has a wire-screen sash to exclude flies and other insects. The space just forward of the screen, and the next one too, where the wife and baby appear, each has rolling curtains as well as the screened space. This makes 3 curtains on the side, so that the wagon can be thrown open back to the hind wheels. The far side is identical in arrangement, though in the picture but one curtain is up.

There is also a curtain across the front to close that opening, though it does not appear, being rolled up under the "nose." Half of the back end is boarded up solid to the roof while the other half has in it a screen-door with a curtain on the outside of it. The writer stands with his hand on the door-latch, the door being partly open.

Now look at the front end again, and you will see a sort of circular porch or step across above the doubletrees. Under the *top* of that step, and in the center, running parallel with the wagon-tongue, is a short partition. The floor of the wagon comes out almost as far as the top of the porch or step; and that little partition resting on the floor boards, and reaching plump up against the top, makes the step solid. Now, on the near front corner, just below the scalloped sideboard, look close and you will see ends of two hinges. Right there on the corner of the porch, and extending around in front to that partition under the porch, is a feed-box or trough. On the other side is one just like it,



R. C. AIKIN'S BEE-WAGON AND PRAIRIE SCHOONER.

hinged on the other corner. These boxes open or swing outward and back against the front wheels, and are the horses' feed-boxes when in camp, and places for a wrench, grease-box, halter, or any thing we wish to carry there when traveling.

You will wish to know why those side-boards are scalloped so. The box is 4 feet wide—just as wide as I thought I dared make it, so that mud and trash would not roll up and clog on the wheels. Being so wide it was necessary to have a "cut-under," somewhat like an express or delivery wagon in the city, else I could not have turned in a 20-acre field. I did not want a raised bottom up under the seat, as we often see in family carriages, preferring to have a smooth bottom from end to end; so I cut under only *part way* across, making the floor between the front wheels in an oblong circular form. The box directly between the fore wheels is just as wide as any part; but back and forward of the axle it is rounded in to allow the wagon to turn in a reasonable space. The circular part of the side is made of $\frac{1}{16}$ inch sheet iron, back of the wheel being bent at a right angle, and reaching out to the side-board. That scalloped board laps back over the lower side-board, and is plated to it, and also has the sheet iron fastened to it right between the wheels, thus securing against any *sag* in the box which would otherwise occur.

That door in the back is hinged in the center of the end, hence, when open, it lies against the closed half. Just inside the closed half, and built against the back from floor to roof, is a cupboard with shelves and drawers. This makes it so that one may reach it from either outside or inside. Just forward of the cupboard, and almost to the hind axle, is an open space, to be used as needed. From the hind axle to the cut-under back of the front wheels, is a bed-spring and mattress. The bed is up about 16 inches from the floor, on a sort of hinged frame of slats, so arranged that the whole thing can be turned up against one wall and strapped there. The bed, being up so high, gives a lot of room under for boxes or luggage. The bed comes plump forward against the back of the seat. The seat is laid across the bench formed on either side by the cut-under, and the seat-back is reversible like car-seats, and at night the back is reversed or thrown forward, forming a little bed for the baby, just at our heads.

The empty wagon weighs 800 lbs. Our load, including ourselves, was 1000 to 1200 pounds. The wagon rides so easily that my wife says she would rather ride in it than in any buggy or carriage she was ever in.

I have given quite a long description of the construction of the wagon, and its arrangement for traveling; and now I want to speak of its use as an

APIARIAN WAGON.

For two or three years I have had some ideas in regard to getting off honey and getting the bees out rapidly. GLEANINGS readers who have also been reading the *Review* and *Progressive* will remember that I have written somewhat of the bee-escape. I was not then and am not yet satisfied with the work of the escape, they being too slow. I know that the man who has only a few colonies for pleasure, home honey, or even for profit, but in a small way, may find the escape a very handy appliance; but the man who makes the bee-business a specialty and his dependence, especially if he is producing extracted honey, can not afford to wait for the action of the escape as now used. Extracting-supers must be *off and extracted before cold.*

The plan I have had in mind for out-apiaries is to have a wagon that can be closed bee-tight, wire-screen door or window, or even a cone outlet so arranged that bees would find it easily. Drive the wagon into or near the apiary; and as fast as honey can be removed from hives, put it into the wagon, and allow the bees to escape while I continue my work removing honey or otherwise. I thought that this would beat the escape, and prove a very good thing. The wagon would be a fine place to keep every bit of honey from the bees where no house was at the apiary.

Let me tell why I thought this plan better than the escape. I have found by repeated experience, that, if a super be removed and stood on end near the hive—say a foot or more from it—the bees would rapidly leave it, except a few of the *very* young. This I have done—not once only, but at least 75 or 100 times. The bees would often leave a super in 15 or 20 minutes, and, in the majority of cases, in less than two hours. The same thing occurs if the super be placed in a room before a window so that the bees pass out through an escape at the top of the window. This I know by an experience of several years, and in the production of many tons of honey. From beginning to end I can remove and extract honey much more rapidly by carrying into a room to let the bees out than by an escape.

My experience with the wagon has been very limited; but here is what I did with the wagon here illustrated and described. Last August, just before we started on our trip, I had a few full extracting-extras and a whole lot of partly filled ones to remove at two out-apiaries, and bring home two and three miles. This was after the flow was over, and about the worst kind of time for robbing. I drove the wagon into the apiary close on one side. Myself and an assistant began removing the extras. I would take the cover off, at the same time applying the smoke, managing the smoke so as to start the bees down, and closely following them until they were nearly all down, when the assistant would pick up the extra from the hive and give a long swinging motion, and rub or brush off on the grass the bees collected on the bottom-bars, then immediately carry the chamber to the wagon and shove it in at the back door. Thus he would proceed until he could not reach to set any more in, when he climbed inside and set them forward in shape to go home. Each time he went with an extra, and the door was opened, a cloud of bees was brought out on the screen, and they at once struck for home. In this manner we would have the wagon loaded almost before the robbers knew what was up; and by the time we got every thing to rights, and ready to go home, we had, by occasionally opening the door, almost freed the load of bees. Just as soon as the team was hitched, the door was set open, and kept so till we were half a mile or a mile from the yard, when we closed it again. It was fully as much of a success as I expected.

In constructing this wagon I put in all bolts and irons in such a way that the inside surfaces of the box are smooth, so that bee-hives, supers, etc., can be shoved in and slid along without catching. The running-gears are too light for the size of the top and box; and if I am prospered so that I can do so, I shall get running-gears and springs that will carry 2500 or 3000 pounds; then with ordinary hives I can load 40 or 50 hives of bees to move. I am so well pleased with the method of removing surplus by carrying into the house to let the bees out of it, that at present I do not wish to use an escape.

[I am well aware, friend A., that you have had a large experience in the matter of taking off honey; but there are others who have had fully as much experience, who use bee-escapes, and insist that they can not get along without them. For instance, J. F. McIntyre and M. H. Mendleson consider them great labor-savers, and would hardly know how to get along without them.* The value of the bee-escape is specially great during robbing seasons. Very often, comb honey has to be removed at such times; and it would never do to let a super stand twenty minutes or two hours near the front of the hive.

Very possibly locality has every thing to do with the matter; and no doubt you can by your plan, in your locality, remove your honey more economically than with a bee-escape. But last summer I tried setting supers out in front of the hives on which no bee-escapes had been placed. After waiting two hours I got tired, and so I smudged and poked them out, any way to get them out. On other hives, where escapes had been placed the day before, the taking-off of the honey was a real pleasure. There was no shaking of the supers, breaking the back, no smudging, but simply taking them off and putting them on the wagon.

I believe Mr. Aikin shows a practical wagon for bee-keepers. Many of the wagons, as usually constructed for carrying honey and removing bees, are ill adapted to the purpose. We have a platform spring wagon, with a platform extending over the wheels on each side of the box, and about 14 inches inside of the edge of the box. The bottom of the box is filled with as many hives as we can crowd in, and then the platform is loaded. We have carried as many as thirty colonies at a load, but it makes the wheels creak a little. Last summer we brought home about 1000 lbs. of honey from our out-yard in this same wagon. If we were going to build again we would have the springs and the general running-gear made so as to carry not less than 2000 lbs.—Ed.]

APIS DORSATA.

REASONS PRO AND CON FOR IMPORTING THEM.

Dr. C. C. Miller:—I should like to ask you for a little information in regard to *Apis dorsata*. I am a reader of Gleanings, and notice articles by a few on this subject. On page 6, Straws, by yourself, I notice a clipping from the *American Bee Journal*. Now, while I do not believe there is a bee in existence that can gather honey from red clover (except the bumble-bee), please tell me what objection the 14 referred to on said page can have to the government importing them here, and giving them a trial: for if there is such a bee as described, let us by all means have it, and the sooner the better. We know that there is more genuine honey in red clover than in all other honey-plants combined; and if we can get a bee that can and will gather it, we shall have a boom in the honey business in every department. If there is any good objection to the importation of *Apis dorsata* I should like to know what it is; and it would give me much pleasure and satisfaction to have a reply through Gleanings. I have kept bees for thirty years, but as a business only five. David N. Ritchey.

Blacklick, O., Jan. 14.

It seems entirely natural and reasonable for any one to take the view that you do upon first being told that there is a bee so much larger than the one that we now have that it can work upon red clover. Tons of honey go to waste every year that might be gathered from red clover. It would cost very little for government to introduce a bee that can gather it; if a success, it would be a great gain; if a failure, no harm can come of it except the small item of expense incurred by government, and that will be divided among the entire nation, making the expense to each bee-keeper only a small fraction of a cent. So it must be that there are some objections or else the 14 to whom you refer would hardly oppose the movement.

I will try to answer your question as to the reasons given by the repliers in the *American Bee Journal*, so far as they gave them. The question asked was, "From what you have heard and read concerning *Apis dorsata*, do you consider it advisable for the government to import them?" The first answer, given by Wm. McEvoy, is, "No," without any reason added. E. France says, "Yes, try them." Mrs. J. N. Heater says, "I think not." J. M. Hambaugh says, "I am in favor of making the effort." J. A. Green says, "I consider it an experiment of doubtful value." R. L. Taylor says, "No, not in the interest of bee-keepers financially."

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* Mendleson is the man who moves 150 colonies at a single load. See his article, page 817, last year's volume.

I do not know just why Mr. Taylor thinks as he does; but if the project should prove a failure it would certainly not benefit bee-keepers financially. On the other hand, if it should be a success above the highest expectation of any one, and if it should be found that *Apis dorsata* should in this country prove as tractable in every way as *Apis mellifica*, doubling the annual yield of honey, does it necessarily follow that bee-keepers would make money by it? One of the greatest difficulties of the present that confronts bee-keepers is that of finding a market; and if the output should be doubled, and the price cut in two, it would only increase his labor without increasing his pay. But if honey could be made plentier and cheaper, that would certainly seem to be for the good of the people in general, and the financial interests of bee-keepers should not stand before the general good.

W. G. Larrabee says, "Yes, if they would not turn out like the English sparrow." He may have in mind the possibility that *Apis dorsata* would divide the harvest with our present bees, without any additional benefit.

Chas. Dadant & Son hardly have any such fears, for they say, "We do not believe *Apis dorsata* would stand our climate." C. H. Dibbern says, "No. I think they would be of no value to the bee-keepers of America." P. H. Elwood says, "Probably not. There are other things the government might do that would help us more."

Prof. A. J. Cook is emphatic in his indorsement, saying, "I certainly do. I think that is just the kind of work for the government to carry forward;" and G. M. Doolittle thinks it can do no harm to try, for he replies, "There is lots of money spent more foolishly by the government than in importing *Apis dorsata*."

Dr. J. P. H. Brown says, "My opinion is that they would not be a desirable acquisition to the bee-keepers of the United States." Jas. A. Stone says, "I have not made up my mind. In doing so, I always think of English sparrows, and I am very slow to say yes." Eugene Secor says, "If the government wishes to experiment with *Apis dorsata*, I have no objections; but as a bee-keeper I shall not ask it to do so at present." Emerson T. Abbott says, "No. Government was not organized to import bees, or any other kind of live stock. The sooner people learn this the better it will be for them and the government too." Rev. M. Mahin says, "I do not. It is my opinion that they would not be of any advantage to the bee-keepers of America. If they were capable of domestication the people of India would have domesticated them long ago."

Mrs. Harrison seems inclined to poke fun at the scheme. She says, "I do; and put them in the everglades of Florida. They are 160 miles long and 60 miles broad. The water is from one to six feet deep, dotted with little islands. The Seminole Indian and *Apis dorsata* would go well together, for he likes honey when it is to be had for the taking; also fruit; but in his wild state he has never been known to plant a tree or keep bees in a hive."

G. W. Demaree says, "I should be glad if the Agricultural Department of the government would take the matter in hand and import the big honey-bee of India, *Apis dorsata*. But, really, I fear that the undertaking might fail because the officials would most certainly intrust the management of the new bees to some favorite dudes, who would make a windy failure of them." J. E. Pond says, "No! Most decidedly not. . . . I am of the opinion now that the discussion that is being made is more to subserve the purpose of some one who knows that cranks and an easily gulled public always exist, and are 'playing a tune to suit their desire for dancing.'"

Less has been done by our government for bee keepers than has been done by other governments—Canada, England, and some of the European powers. It has done less for them than it has for perhaps every other interest pertaining to agriculture, so it would be nothing very immodest for bee-keepers to ask such aid as they might desire. But if they ask for something that proves of no benefit to the country, will it not lessen their chances for getting aid in other directions? Better first ask aid in the way of experiment stations or something of that kind—something as to whose success there can be little doubt, and not a thing that many regard as a will-o'-the-wisp.

You may ask what reason there is for considering success so problematical. Some have said they think *Apis dorsata* might be successfully domesticated here, and that possibly it might be crossed with *Apis mellifica*. Those of opposite views point to the stubborn fact that it never has been domesticated in its own country. Those who appear to know something about the matter say it can not be domesticated; that it will never stay in a hive, but at stated times will desert its habitation just as surely as a migratory bird. Surely it seems reasonable that it is hardly worth while to bring it here until success has been attained in confining it to a hive in its own country.

You press the point that there is a great quantity of honey to be had from red clover. But it will do no good to get another bee to work on red clover unless we can get the honey; for the bumble-bee works on it, but that doesn't specially benefit the bee-keeper. Very likely you may say, "Well, even if we don't find it any better than the bumble-bee, it can't do any harm to import it, even if it does no good. The bumble-bee is the only bee that works on red clover, and it will be no loss to let the two big bees divide." Softly. You are quite mistaken in thinking no bee but the bumble-bee now works on red clover. Many have had bees that gathered more or less honey from red clover; and very likely if you watch from year to year you may see some of your own bees at it. It is not at all impossible that we may breed *Apis mellifica* with a tongue so long as to reach to the bottom of the red-clover tubes. There is a decided variance in the length of bees' tongues. In France they have been making an effort to breed larger bees, longer tongues coming with larger bees. In our own country Dr. Murdock has bred bees so large that the worker-cells are almost as large as ordinary drone-cells. He says they work well on red clover.

Now, suppose *Apis dorsata* is brought into this country, behaves as it does in its native land, and multiplies so as to gather nearly all the red clover honey. Don't you see that it will not only be of no use, but that it will be a positive damage to those who have a red-clover strain of bees? No wonder English sparrows came up in the minds of two of the gentlemen making replies. No, let us work to get *Apis mellifica* regularly instead of exceptionally to work on red clover, and not run the risk of getting *Apis dorsata* here until we know for certain that we can make it work for the benefit of its owner, and not to his detriment.

C. C. MILLER.

There are plenty of things we need at the hands of the general government much more than the importation of *Apis dorsata*. If any one wants these bees I doubt not that they can be obtained from missionaries far more cheaply than by sending some man desirous of a fat government job after them.—ED.]

QUALITY OF COMB AND EXTRACTED HONEY COMPARED.

IS THERE ANY DIFFERENCE? IF SO, WHY?

By F. A. Snell.

There is quite a difference in the views of bee-keepers upon this subject. Why this difference? It seems to me it must result largely in the difference in management practiced by the apiarists. Many claim that the quality of honey stored in new combs or in sections is of better quality than that stored in old combs, such as are used mostly for extracted honey, while others as earnestly claim there is no difference. My experience has been that as good honey can be secured in the extracted form, stored in old combs, as in any other form; and during some seasons, if anything it is better.

In 1895 and '96 our extracted honey was of better body—that is, thicker and richer in flavor than our comb honey. Other years there has been no perceptible difference. Our comb honey was well sealed, but the honey was rather thin or unripe the past two seasons from clover and basswood. The combs on the extracting-hives were only partially capped. The honey was left on the hives some time, which gave time for the moisture to be evaporated; thus it was better ripened than our comb honey, which must be removed soon after it is capped, to present the best appearance and bring the highest price in market.

My extracting combs are kept dry and sweet when not in use. No pollen is stored in them, nor brood, as I use a queen-excluder which keeps the queen from these supers. In good seasons I tier up. I first put on one super of combs; and when these are nearly filled, and a little capping done, I raise this super up and put a set of empty combs under it, next to the brood chamber, which gives the bees more room. Storing is begun in the new super, and the upper one is filled. Much of the honey being thus uncapped, it is ripened more completely even than when capped soon after being stored. In a week or a little more the first supers are emptied of well-ripened honey, as most of the newly gathered honey has been stored in the lower story.

If the honey-flow at this time continues good, the emptied stories are put under the one put on a week previously, and the work goes on, and we shall have the (then) upper stories of well-ripened honey to take off a few days or a week later. All strong colonies are managed as above described. Those not so strong are run only two-story; but the honey is left on the hives until of good quality. When taken off, all our honey is stored in the honey-room, which is a hot place, and air-dry.

In fine weather the screen-covered windows are left open by day. Our extracted honey is stored in open cans and barrels. With this method we secure good honey if the flowers yield. Of course, in past No. 1 seasons the honey seems almost ripened when stored, and need not be then left so long on the hives. Unfortunately we have had none of these since 1888. In 1895 and '96 our fall honey was of better body than that gathered during summer.

Milledgeville, Ill.

[Whatever may be true of your extracted, the *average* of extracted is not equal to the *average* of the comb honey. There is one point that you have not mentioned; namely, that in the production of comb honey the bees begin to store in shallow cells. As the honey is stored the cells are increased in depth. Meanwhile, the honey in these *shallow* cells is ripening *as it is stored*, and more perfectly than if stored in the deep cells (full depth) of extracting-combs. The average consumer says comb honey tastes better than extracted; and if there is any difference it is due to the storage in the shallow cells to start with.—ED.]

LOP-SIDED SECTIONS.

TWO OR ONE STARTER; A REPLY TO DR. MILLER.

By G. C. Greiner.

In his strawy comments (I mean the comments in his Straws) I am pleased to notice that for once Dr. Miller agrees with the rest of us, at least in so far that he does not lay the attending trouble to oblong sections. But in explaining the cause by "weak colonies and poor harvests," I believe the doctor is joking. Yes, Dr. M., this is not the Eldorado of bee-keeping; we have occasionally weak colonies and poor harvests, too, but no more lop-sided sections when these conditions are prevailing than we have when matters are more favorable. If colonies are too weak to work properly, what is the object of letting them spoil what little they do do? Why not unite, make one strong one of two or three weak ones, and produce a desirable, perfect article?

The bottom-starter theory may work with Dr. M. to his entire satisfaction, but I hardly think the extra work and expense of putting in two starters instead of one would be a paying investment with the majority of bee-keepers. Years ago I experimented in that line to some extent, but I could never see any great advantage over the single-top starter.

In writing the sentence which Dr. Miller quotes in Straws, I have probably been a little too hasty, covering too much ground without a sufficient amount of backing. I have never examined unfinished sections for the sole purpose of ascertaining the relative amount of drawn cells and honey contained in the two sides. I simply wrote from the impression which any one receives from the glancing look with which sections are handled when sorting and putting them up for shipping.

Since Dr. Miller mentioned the lop-sidedness of his sections, I have given a lot of unfinished sections a thorough examination. and found that my assertion made in the quoted sentence in Straws is practically correct. This lot of sections, six or seven 24-lb. shipping-crates, is all I have left in the same shape it was when taken from the hives, and is such honey as we sort out for family use, home market, to give away, etc. These sections range anywhere from not quite finished to one-half to two-thirds capped, and are just the right kind to have this lop-sided work, if bees are inclined to do business in that way. To be sure, if we count the cells and measure the depth of honey they contain, we can notice a slight variation on all of them; but the variation is almost always at the very tip bottom end, so that the center of gravitation would not vary from the center of the section more than a mere trifle, even if the combs were not attached to the sides and could swing back and forth, as when hung at the top by hinges.

Naples, N. Y.

ANOTHER BEE-KEEPERS' UNION.

THE DUTY OF THE HOUR.

By J. F. McIntyre.

As I read the paragraph at the bottom of p. 129 in GLEANINGS for Feb. 15, I thought of the article and footnote under this heading on p. 610, GLEANINGS for 1892. Please read them, Mr. Editor, and tell us if you do not think that much valuable time has been wasted, and a great deal of foolishness indulged in, by bee-keepers since these lines were written. Paul said, "This *one* thing I do," and he made a success of doing that one thing. Newman says, "This one thing I do—defend persecuted bee-keepers," and he makes a success of it. He could not see his way clear to fight the glucose-mixers, and make a success of it, and I do not blame him for refusing to undertake the task. I have a few dollars which I should like to spend in prosecuting those men who are labeling glucose "Pure Honey," and spoiling my market for the genuine article, and I know a few other bee-keepers who have a dollar to spend in this direction, and I propose that we put our dollars together and authorize some one who is interested in saving the bee-business from destruction to spend them. I can see no harm in forming a union for any purpose that may be desirable to unite for, and not waste time and energy in trying to get a union organized for another purpose, to change its purpose and spend its money for something else. If I put up a dollar to fight glucose I feel like saying, "If you can't fight glucose with it, give it back to me." I do not want it diverted from its purpose, and used to fight Wheadon & Co., or carry on a lawsuit between two neighbors. The more things a union can use its money for, the less confidence people will have in it, because the manager may spend the money for something that we have no interest in whatever.

Fillmore, Cal.

[I still honestly feel that one union could and should do the work of the two; but now that amalgamation is defeated we may be forced for the present to have two unions—one for defense and the other for fighting dishonest commission houses and the adulteration evil. Of course, there are many things I might say; but now that the "war is over" I deem it both unwise and unnecessary to say any thing further relating to Mr. Newman's policies. The duty of the hour is to beat our swords into plowshares, and *begin work* in harmony and brotherly love. As you will notice in another column, the new Union is laying its plans to go to work; and it will be glad to receive the names and the dollars of any who are interested in the matter of fighting the glucose evil; and while you and I may have different opinions on these matters, we surely can and will work in harmony in both Unions. —Ed.]

CAN EXTRACTED-HONEY PRODUCERS AFFORD TO BE HONEST?

A SIMPLE WAY TO DETECT GLUCOSE IN HONEY.

By Geo. L. Vinal.

Mr. Editor:—To illustrate why I chose this subject, I will give a little of my experience in the last two years—not but that I hope all honey-producers are honest.

Last fall I sold some honey to a friend of mine, one who ought to have known that I would not sell any thing but straight goods (it was extracted honey). About New-Years' day I saw the parties, and they asked me what made me mix so much sugar with the honey. It was almost impossible for me to convince them that it was not mixed.

Another case in a town about four miles from here: I have sold honey to a grocer for four years, put up in pint jars, labeled, etc. This fall he bought at one time a gross, put up in the jars, and at the same time he bought 325 lbs. of extracted in bulk and 100 lbs. of comb. (I wish to state I had done quite a business in peddling in the town, and could generally sell the second time.) As he was the principal grocer, I did not go there to peddle, as he gave me to understand that he was going to retail the honey in the town. About two weeks ago I went there and called at the store. The clerk did not know me. I saw, arranged among my labeled jars, jelly-tumbers and some pint jars, unlabeled, filled with honey and a piece of comb about an inch square in each. I asked the clerk (a lad about eighteen or nineteen years old) where Mr. W—— was. He replied he had gone to dinner. I talked about the honey, sampled some of it in the tumblers, and finally got the lad to say it was mixed with syrup of some kind. When the proprietor came in I asked him about it. At first he denied it; but when I told him I knew it was mixed he said, "Yes, it is about two-thirds corn syrup, or glucose." He says it sells better. It does not sugar, and people like it better, for they think when it granulates it is mixed; and as long as it stays liquid they think it is pure; and if they want it that way why not let them have it? He said, "I can make double the money that I can to sell pure honey."

I asked him why he did not melt all of it.

His reply was, "There are some people here who have had your honey, and know that pure honey will granulate, and will have no other. That I keep to sell to my best customers, and to use in my own family. I went to a confectioner's, with whom I am acquainted, who is making and selling honey caramels. I asked him how much glucose he mixed with the honey he sold. He said about one-third. I asked him why he mixed it. His reply was, 'It does not granulate; and, besides, it makes it cheaper, and the people like it as well as or better than the pure honey when it is sugared.' "

I thought I would see the opinion of the different experts. I got some glucose of him. He said it was the very best quality made. I put one-half good clover honey with it, and sent out five samples to different experts, so called, sending a stamped and directed envelope to each, requesting them to give their opinion as to what kind of honey it was.

No. 1 answered that, in his opinion, by the taste, it was a fine sample of white-clover honey.

No. 2 thought it was a good sample of basswood and clover.

No. 3 thought it might be a mixture of some kind of syrup and honey, probably glucose.

No. 4 said he thought it was clover and other flowers mixed.

No. 5, whom I expected the least from, said it was a mixture of glucose and honey, according to Root's test.

Now, how is the general public to discriminate the pure from the adulterated? Not one-half of the people read the directions on the bottles about liquefying the honey, or about its granulating. I do not believe, Mr. Editor, all that can be written in the bee-journals does any good. Some able writers should write in some of the daily papers, the agricultural papers, in the magazines, and in that way educate the masses, and thereby kill out the frauds.

Charlton City, Mass.

[It would seem that the policy of making public this article was somewhat questionable; and yet I believe the readers to whom it goes are just the very ones who should know the facts, and thus be able to cope with the evil in a proper and intelligent manner.

In the first place, it is evident that not all the glucose-mixing is done by the large syrup-handlers and honey (?) - houses of the cities. Some confectioners know that, by adding glucose, they can very materially increase their profits—for a while at least; but after a little they will find that their customers tire of such insipid honey.

There are two kinds of glucose on the market —the ordinary, the metallic taste of which in honey can be very readily detected by an expert. This glucose has a brassy and (to me) a somewhat nauseating flavor; and from tests which I made a few years ago I could detect even 10 per cent of it in honey just by the mere taste. Such goods will not sell long, for they are too vile for the stomach of a hog. But there is another kind of corn syrup, the very finest, from which this brassy metallic taste has been eliminated. It is this article, mixed in honey, to which Mr. Vinal doubtless refers, and which can not be readily detected by the taste.

A tolerably sure means, and a very simple one indeed, for determining the presence of such glucose, is by what is known as the alcoholic test, incorrectly called the Root test above, but which in reality is a test that we obtained from the *Bienenvater* (Bee-master), of Germany, and which reads as follows:

> Take a tablespoonful of the honey to be tested, and pour it into a small bottle. Then add three spoonfuls of alcohol, and shake the whole together thoroughly. In about a quarter of an hour there will form in the bottle a cloudy, whitish sediment, and from this one may be sure that the honey is adulterated with glucose.

The directions above say *shake;* but a better way is to stir it vigorously for some little time, and then allow it to stand. In about fifteen minutes it will look as if a very small quantity of milk had been mixed with a little quantity of water; that is, the mixture will have a bluish, milky cast. While this alcoholic test does not show the percentage of adulteration, it is very reliable in showing the presence of the cheaper article. In this State, at least, it is just as much a violation of the law to put in a little glucose as a large amount, without labeling it. If there is any corn syrup present at all, you may be sure that the mixer would not stop short of 50 per cent. If he is dishonest enough to adulterate, he will make a job of it.

Now, I would suggest that bee-keepers buy samples in their local groceries everywhere, of jelly-tumblers containing the liquid stuff with a piece of comb in it. Go to your drugstore and get ten cents' worth of alcohol. Take the stuff home and try the test. If it shows glucose, send the label, detached from the tumbler, to us. If it is not labeled, send the name and address of the grocer handling it.

Although there may be such, I know of no bee keeper or reliable honey-house that puts up pure honey in this shape. The piece of comb is simply a cloak to cover up dishonesty. The very fact that we have had repeated calls for pieces of dry comb, from concerns whose stationery shows they make a specialty of syrups, shows very plainly what the object is.

The heading at the top of Mr. V.'s article is rather startling. I suppose friend V. put it there for the very purpose of catching the eye; but all our readers, or nearly all of them, including friend V., will conclude that the bee-keeper can not afford to do otherwise than to sell the pure product of the hive. You will notice I put in a clause above, "nearly all." Perhaps I should be justified in striking it out entirely. However, as there may be one or two black sheep in our midst, and probably are, I leave it in.—Ed.]

CHIPS FROM WOODCHOPPER.

THE USE OF BURR-COMBS.

Bees usually gnaw the cappings of sections for several reasons. 1. Because they are scared when they are disturbed, and proceed to get a load of honey from the first that comes to the touch. At such times they will cut the cappings when there is plenty of unsealed honey within half an inch of them. They seem dazed, or get reckless. I have seen a black swarm bite nearly all the cappings in the brood-chamber during an examination, and it is expensive business too; for they never fix it up again, and a few such scraps will use up a winter supply, and unless there is a late flow they will have to be fed, as I have found to my sorrow, sometimes, in requeening, when no honey was coming in.

Another reason is, that they never leave the sections and go back without as big a load as they can manage to fly with; and unless this is supplied in some other way they are obliged to bite cappings to get it; and right here is where the much-abused burr-comb does a good turn if they are filled with honey, which, being broken in removal, furnishes their load, and starts them home much sooner than they would otherwise go. I may add that, at any other time, the burr-comb is a nuisance, although bees will enter the sections sooner and work better with them between the top-bars and the super.

I know one man who had Langstroth hives with light-top-bar frames which sagged half an inch or more, and that space was filled with combs which he never removed, but set the surplus-receptacles directly on them with a thin board bottom between to keep the combs from being attached to the sections. He never gave the bees any other attention than to put them on at the beginning of the harvest, and remove when full; and I have never seen a whole apiary in my life that filled up as uniformly and in as good shape as that one did year after year; but bees could not be handled in that way if you ever wanted to know any thing about their downstairs condition, for they were as immovable as a box hive, but much better for honey production. (Now, that chip must be twice as large as the whole block.) If that big cave had been located here for the last two years there would be neither tons of honey in it nor even pounds; and how do those fellows know about the amount of honey, any way, as they say it can't be seen nor got at?

BEE-PARALYSIS.

I've had quite a good many cases of it, Dr. Miller, that did amount to something. I always cure it, but it spoils the swarm for that season, if it gets much of a start before it is attended to.

CURE.

Kill the queen and allow them to raise another from the egg. Don't put in a cell or another queen, but let the brood get all out of the way before another queen gets to laying. I never had a hive affected again if treated that way.

BEE-SPACE AROUND END OF FRAMES.

Why, Dr. Miller, you are over thirty years behindhand if you have just begun to use it. It was the biggest nuisance in the whole business—that is, to have the ends go down tight, and it always made me out of patience to get hold of such a hive. It's far worse than burr-combs. I used nails for end-spacers once, but discarded them years ago, and don't want any kind now; and if I wanted fixed frames I would use nails in preference to any thing else; but I've no use for fixed frames either.

WHY DO PLANTS YIELD HONEY SOMETIMES AND SOMETIMES NOT?

Well, it is a disputed point, some thinking it wants lots of electricity; but the poorest seasons, and the most of them, with me, have been just that kind of weather. Then others say, dry and warm. Well, that is better for a little while, but it's sure to cut the flow off by killing the plants if it is very dry; besides, in my opinion, drouth is very nearly always at the bottom of the whole thing of honey failure. In an experience of 37 years with bees I have never had a good yield of honey in a season that followed a very dry spell the year before; and I never had a failure the next year after a wet summer, no matter what the next year was—hot or cool, wet or dry. Do you see the point? Some do, and some don't. Well, it is this: If plants can have sufficient moisture all through one season they will prepare for a good yield the next year, and will give it unless something kills them next year or they get winter-killed. I have never seen it fail.

As to the theory of the condition of the atmosphere at the time of blooming, I don't believe it makes much difference. Indeed, the best yields of honey I ever got were in some of the very worst atmospheric conditions possible. I once had one week of great yield when it was so cold and dry that it killed the clover in a week, and killed all the field bees to get the honey too. The sunshine was very bright every day; but a cold northeast wind blew right off Lake Erie. The clover belt was about a mile from the lake, and about two miles from the apiary (every thing nearer and on higher and dryer land dried up without coming to bloom at all); and the bees were obliged to face that chilling wind to get there, and at the end of one week there were no workers left, all having perished except the younger ones not old enough to work outside. The clover also perished about the same time; but in that week the best hive filled 50 1-lb. sections, and made a winter supply, and the weaker ones got heavy for winter. Trees are not so much affected as plants, as they form their buds and get ready for next year during the month of June, especially basswood, the buds of which are full grown and all wood growth done usually by the middle of the month; and although the latter part of the season may be very dry, it does not make much if any difference with plants like buckwheat that grow and bloom all the same year. I think the same conditions prevail, as I never knew it to yield much honey unless it could have moisture to make a good thrifty growth up to the blooming period; but if stunted, and short of water when it was going up to bloom there was little or no honey, no matter how favorable the weather was during bloom. I have had four good crops of honey in succession, every season of which had had lots of rain; then that was followed by six years of drouth, and not one of these gave any more than enough to winter the bees; and since I have been here we have had three dry seasons followed by no honey the next year, and two wet ones followed by good yields the next year. This past summer was fairly wet, and I expect honey next year any way, whether wet or dry, unless it should be so dry that clover can not grow at all, as it was two years ago.

BEE-ESCAPES, ETC.

ANSWER TO MR. F. GREINER'S INQUIRY, PAGE 83.

By S. A. Shuck.

It is one of the peculiar characteristics in the natural instinct of our common bees not to desert their home, by compulsion or otherwise, without taking sufficient food with them to last them two or three days. This is manifest in the amount of honey taken from a hive by a swarm just issuing; also, when bees are drummed from box hives in transferring; or in disturbing them in any way so as to disorganize them from their regular routine of business.

So pronounced is this peculiarity in their nature that any disturbance of a hive that interferes with the labor of its inmates seems to beget within them a fear that they are to be summarily expelled from their home. The peculiar individuality of different colonies of bees makes this matter much more discernible in some colonies than in others, and is much more pronounced in some races than in others. For instance, the common black and Carniolan bees are much more excitable and become disturbed much easier than pure Italians. The former, on becoming disturbed, do not look for open cells from which to obtain a supply of food, but in their excitement they tear open the cells about them, take up a supply of honey with manifest nervousness, and rush from the combs in that pell-mell, hurry-scurry kind of way that is so characteristic of those races, and which make them so distasteful to the practical beemaster.

Now, in answer to Mr. Greiner's question, "Who can tell us why bees act so in one case and not in another?" I wish to say that, when the escapes are used in the height of the honey season, the bees have all the honey in their sacs they can conveniently care for; and when they are disturbed by the insertion of an escape-board, there is no occasion for their taking up more honey; consequently the cappings are not interfered with. But after the cessation of the honey flow, and especially at the close of the season, there are not only fewer open cells that contain honey, but the bees have but little or no honey in their sacs, so that, when they find themselves cut off from the brood-chamber by the insertion of an escape-board, they may perforate the cappings to obtain a supply of honey to take with them. But, as stated above, there is a great difference in the excitability of different colonies; and while pure Italians will usually pass out quietly without molesting the honey, blacks, Carniolans, and their crosses are liable to mutilate the cappings more or less late in the season. And further: As the last bees to leave supers are the ones that become most excited over their more apparent isolation, it is natural that they should mutilate the cappings on the sections nearest the place of exit.

One of the leading features of rejoicing over the introduction of a good, practical bee-escape was the lessening of the damage to comb honey by the bees perforating the cappings; for in the old way of smoking and brushing off the bees from sections, in many instances the cappings were badly mutilated in spite of the bee-master's efforts to prevent it. With the use of escapes, the bees do not become so alarmed; and if the bee-master is up and doing in good time there is but little excuse for complaint in this direction.

Talent, Oregon.

FUEL FOR SMOKERS.

THE CORNEIL SMOKER; SHAVINGS VS. STOVE-WOOD; PRICES IN CALIFORNIA AND NEW YORK; BRITISH MARKETS; FOUL BROOD; HORIZONTAL WIRING OF FRAMES.

By Wm. G. Hewes.

I have been testing your Corneil smoker, and find it the equal of any other smoker in all respects, except in price, and in that it is superior, being less—a valued consideration in these days of low prices for honey and only occasional crops.

I notice you recommend burning hard wood and shavings. Shavings are all right. Nothing I have used suits me so well; but to burn hard wood is better for the manufacturer of smokers than for the bee-keeper, because the great heat from the glowing coals of the wood will burn out the smoker in half the time that shavings, rags, punk, etc., will do. I find that the fire-box and nozzle are the parts which first give out; and I think that, if they were made of heavy galvanized iron, the life of a smoker would be longer.

At first I did not like the hinged nozzle, as I found it very difficult to tip back when the smoker was cold and the creosote hardened; but I find that, by tapping the nozzle lightly with a bit of wood, where it fits over the fire-box, it will readily open.

In the "Year-book of the Dept. of Agriculture" for 1895, Secretary Morton, in his report, has a few words to say in regard to the honey market in England. He quotes "Thurber & Whyland's white-sage honey," in one-pound jars, as selling at $2.30 per dozen, or nearly 20 cts. per pound. "California, in original cans (about 56 lbs.), per cwt. of 112 lbs., $9.60," or a trifle over 8½ cts. per lb. As this honey was purchased from the producers at an average of about 4 cts., it can readily be seen that the speculator made a good thing; but what, in our Western vernacular, "breaks me all up," is when I realize that Thurber & Whyland buy my honey for 4 cents, put it into a quarter-cent jug, and sell it for twenty cents. No wonder they are multi-millionaires if they are in the habit of making 400 per cent profit on every thing.

It seems to me the British market is worth investigation by our Exchange if we ever again have a crop of honey to sell; and that jug process, for multiplying by five the price of our honey, gone through with at home.

Secretary Morton further says: "Our agent in England has had several inquiries as to the honey market this year, especially from Texas, and has supplied inquirers with names of importers in England and with information as to how to approach them, and this he will be pleased to do for all inquirers." I should like to request right here that, if any of these inquiring Texans made a shipment to England, they tell through GLEANINGS what success they met with.

The Secretary speaks of bee-keepers as "honey-makers." I wish to inform him, through the medium of this journal, that it is not the bee-keepers who *make* honey, but New York and Chicago merchants.

Foul brood seems to have been rather more contagious the past season than usual. Apiaries which had it several years ago, but whose owners thought in 1895 they were rid of it, were found the past spring to be badly infected again. The foul-brood inspector, Mr. Hart, was sent for, and he looked through all the apiaries in this district, marking the diseased hives; but I fear it does not do much good, as he is not authorized to burn the hives, and the owners often try to cure, which, if they are inexperienced or careless, only results in spreading the disease. Healthy districts are often infected by the moving of a diseased apiary into their midst. A desirable law would be one preventing any person from moving bees without first having them inspected and pronounced free from foul brood. A similar law is now in force in this State in regard to fruit-trees.

Some years ago, when you published the Keany method of wiring frames, I fixed about one thousand in that way; but, as I found that, when the foundation was drawn out in strong colonies, it sagged and made a bad kink where the wires crossed, I abandoned it for the horizontal process, which I had used for a number of years previously. There was one idea in Keany's method, however, which was worth retaining, and which I have retained, but which I see by your circulars, you have not, and that is the fastening of the wire to nails bent in the shape of hooks instead of sewing through holes in the end-bar. I find that, when sewed, unless great care is taken when scraping propolis from the frames, the wires will be cut, and the work undone; and where one has not machinery for making the holes it will be found easier to drive and bend the nails than to make holes with a punch. I do this work on an anvil, as driving against something solid enables me to sink the nailheads into the wood. I use nails ⅛ inch longer than the thickness of the end-bar. By a tap from the hammer they are bent over, and, after the wires are in place, another tap sinks the projecting points into the wood, and the wires are a fixture.

[We very much prefer shavings in place of stovewood; but some people have an idea that a smoker is not good for much unless it will burn stovewood. Our Corneil will burn hard fuel as well as any.

It is a pretty big margin between the price of your honey in California and the price as it is about to leave New York. Would it not be well for the California Exchange to seek to find its own British markets rather than to pay some one else a pretty big salvage for doing the same business?

After we had tried the Keeney wiring for a season we found the same difficulty you report. We then took up horizontal wiring, and have been using it ever since, and have as pretty a lot of combs as you ever saw.—ED.]

PETTIT'S SYSTEM OF TAKING COMB HONEY, AGAIN.

HOW TO GET THE BEES TO FILL OUT THE OUTSIDE SECTIONS.

By S. T. Pettit.

I notice that you, on page 52, have mixed up my system of taking comb honey with Mr. Danzenbaker's system, and that you have come to the conclusion that the results will be practically the same. But I think quite differently. Mr. Danzenbaker's reversible bottom-board (I wish you would let me say "floor" instead of bottom-board) gives an entrance of one inch high only, and the same elevation is kept up all the way to the rear end of the hive. My system gives an entrance 1⅜ in. high, and the bottom-bars at the rear end are only ⅜ to ½ in. from the floor.

Now, there are obvious reasons why the results will not be the same in the two systems. Let us look at them for a moment. When the bees come in from the fields a few times they learn to realize pretty clearly that, with a 1⅜-inch entrance, they can not reach the frames near the entrance; a lower entrance would encourage them to keep on trying once in a while. Then, again, when the rear ends of the frames are within about ⅜ of an inch of the floor, the bees are induced, or a part of them are, to go right on until they can easily catch on to the bottom-bars; so you see this places a lot of them right away back where most needed, the others going up the sides.

But with Mr. Danzenbaker's equal height from the floor, all the way back, almost all the bees would go up at the sides, or manage to reach the frames some other way; they would not go clear back; and the result would be a greater or less neglect of the rear sections. But in my system, the rear sections are equally well cared for. And, further, I want the rear end of the floor about an inch higher than the front end. That position keeps out the water, and helps the bees to keep their house clean.

Again, the section super should not be far from level from front to rear. Well, now, we see that the wedges fix these requirements just right also. I may be allowed to point out that there is less work in placing the wedges in position, and removing them, than there is in reversing the floor twice.

Well, dear Ernest, I beg to say that footnote is my excuse for these comparisons. I have no axes to grind, and no desire to say an unkind word against any one's hive. I believe that reversible floor is an advantage in giving more roominess and more air, but at the same time I am persuaded that there is a more excellent way. It appears to me just now that so much has been said about the lower arrangements of the hive that there is danger of losing sight of the important feature of giving two bee-spaces at the sides of the supers. S. T. PETTIT.

Belmont, Ont., Can., Jan. 23.

[I did not mean to convey the impression that your system and Danzenbaker's were identically the same, but I am glad for your further statement in the matter, for it will leave the subject, I am sure, in such shape that there can be no further possible misunderstanding. Mr. Pettit is a careful bee-keeper, and our readers will do well to try his plan.—ED.]

WOLF-HUNTING.

INTERESTING REMINISCENCES OF A BEE-MAN.

By E. France.

After living on the frontier in Iowa, trapping and hunting 6 years, I came to Grant Co., Wis. I found pretty good trapping here, so I went at my old tricks again. Beaver were gone, but there were some otter, coon, mink, rats; some wildcats and wolves were quite common. A few years after I came here the county put a bounty of $4.00 on the wolf. Then the county raised the bounty to $8.00 to kill a wolf; then the State put on a bounty of $10.00 for wolves, and $10.00 for wildcats. That year I killed 38 wolves and ten cats. The next year the county dropped the bounty to $5.00; the State also dropped the bounty to $5.00, providing the county paid five; if the county paid no bounty, then the State paid nothing; so in my county the bounties amounted to $10.00 for young or old; so I went to hunting young wolves. I found that a different job from what it was to trap old ones.

There were about 40 days, commencing April 5th, when the litter of young ones would be likely to be found together, and could be captured in a bunch. The average litter was about six. For several years I caught from 22 to 40, average about 30, most of them young. But sometimes the old one would be in a den of rocks with the young ones, and she would be very likely to make it lively for the hunter to get them out. Very few had their young in dens. They would more often be found in a thicket of brush or a hollow log, or in the grass, strawstacks, or almost any place, like a litter of pigs. But I found several litters in rock dens.

I had a hard fight with one in a den once. I found them just at night, about sundown. I stopped up the hole, or entrance, of the den, so the old wolf would not move the pups, as she would be very likely to do if she found that some man had been there. After stopping up the hole I went off to a farmhouse to get some supper. After supper I went back to watch the den until daylight the next morning. Two farmer boys went with me. They said they would stay all night, but they got cold and went home at two o'clock. I stayed. There was a little cave up the hill, about 15 rods away, where I could keep out of the wind. I stayed there most of the time. About once an hour I heard something stepping around, and would hear little stones rolling down the steep side hill. I supposed it was the mother wolf, and I was afraid she would dig the young ones out and carry them off. So I would go to the den, and feel to see that the hole was stopped up yet. At such times I would listen at the den, and could hear the pups whimpering.

When it came daylight I went to work enlarging the hole so I could crawl in. I worked about two hours with a hoe that I was working with. It was dark in there, as I made the hole only large enough for me to crawl in, my body nearly filling the drift that I made. When I got to the end of the den I pulled one of the pups to me with the hoe. I took it out and killed it, then went back for more. I hauled another one to me, took it by the leg, and then hauled another one to me; but in getting it so I could reach it with my hand I hurt it with my hoe, and it cried out. Then in an instant I found out that the mother was at home. She came for me; but the hole was pretty small, and I kept pounding back with the hoe; but she gained on me until I had the hoe by the ferrule, just at the neck of the hoe, and the wolf biting the blade of the hoe. I felt her hot tongue on my fingers. I kept chopping down on her toes and nose so fast that she gave up the fight and went back to the nest again. Then I crawled out, with the two pups that I was holding with my other hand. Then I walled up the den again, and made ready to get the " old gal " out. I had a set of tools of my own make—the head of a carpenter's brace, with a hoe-socket welded on so that I could fasten a pole to it. I had some spears, hooks, twisters, etc., I could put in one at a time, the same as we use carpenter's bits. I cut a handle for my tools, and put in a long ugly-looking spear. I lighted a candle (I always carried a candle), then opened the den and went in with my spear in one hand and candle in the other. Mrs. Wolf was waiting for me, with her head toward me. I instantly speared her in the throat, killing her the first jab. I drew her out, and then got out the rest of the young ones. A spear is better than a gun for that work, as the gun fills the den with smoke; and, if you don't make a dead shot, you are in danger. With a spear there is no smoke; and if the first jab doesn't kill, you are pretty sure to have the spear anchored in the beast strong enough to hold the animal away.

ONE MORE DANGER.

I was hunting one spring along the Mississippi River bluffs for young wolves. I found a place where I was pretty sure there was a litter. About 150 feet up a perpendicular bluff of rocks there was a narrow shelf of rock about two feet wide the most of the way. But there was a part of the way where the shelf was only a foot wide. The rocks above hung over the shelf, so that one could not stand up; in fact, I lay down and crept along the shelf for 50 feet or more. At the further end of the shelf the space widened out and formed a cave under the overhanging rock, big enough for a a good-sized bed-room. In there lay seven young wolves — seventy dollars' worth—too young to fight or run away; old one not at home. I killed and scalped the pups, and the next thing was to get back safely. When I looked back over that narrow shelf of rock, and the ragged pile of rocks 150 feet below, I would gladly have given up the seventy dollars' bounty to be safely out of there. But the only way was to go back the way that I came. True, I had gone over the place once, and could I not go back just as easily? In going over the shelf to get there, at the narrowest place there was a rock in the shelf that projected out a little further than the rest of the shelf. After I had got my body past I put my foot against that rock to push myself along. I broke it off and it fell below. That lessened my safety in going back. I took a good rest, took off my coat and dropped it over the fall, and dropped my hatchet, and started back. I got back by hard work. Then I sat down and rested for an hour before I went down to get my coat and hatchet, and I promised myself that I would not go there again.

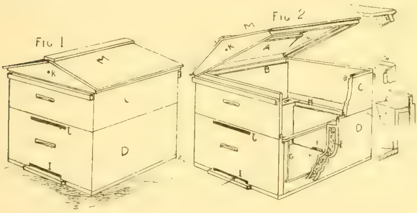
Platteville, Wis.

TRADE NOTES
BY EARNEST R. ROOT.

YOUNG'S CHAFF HIVE.

By J. M. Young.

If you were to step into our workshop or apiary to-day you would see a lot of hives very much in appearance like the small one I send you by this mail. It will explain itself, and the manner of construction will show to you what we have been using to winter our bees in for a period of fifteen years. At one time we had quite a number of colonies in these hives; and from what experience we have had in using them we have met with excellent success, the per cent of loss being very small, usually, when the bees were in the proper condition for wintering.



The model will show that the lower story is packed with chaff only; and the upper story, being single-walled, can be removed by the operator when handling the brood-frames in the lower part of the hive.

The upper story contains frames also, but they hang at right angles to those below. This removing of the upper story in order to get at the lower part is one special feature in making and using chaff hives nowadays, and is one appreciated by practical apiarists. The constant use of this hive by us ever since its introduction alongside of the new dovetailed, has clearly proven that it is not far behind the single-walled hives in manipulation, from the fact we use it every summer, one as much as the other. The outside dimensions are about 20x22, and 21 inches deep. We use the improved Hoffman frame, size 9⅛x17⅝, and any of the single-walled hive furniture is interchangeable with the chaff hives, or vice versa. It can be made for 10 or 8 frame size, as the apiarist may desire, without changing the dimensions, outside measure, by simply making the inside box of the lower story to suit the number of frames desired.

The 8 frame size has three inches of dead-air space for packing at the sides, while there is only about one-half inch at the ends. It has been our experience that this amount of dead-air space is sufficient to obtain good results; and wider than this is really not necessary. We think this space should by all means be filled with something. We find that dry, loose chaff is more suitable than any thing else that we have tried.

Any size of honey-case or super can be used in this hive, or any width; the new dovetailed-hive super can also be set in or tiered up as may be desired, or, if preferred by the apiarist, a regular 8 frame hive body, with wide frames, may be used in the upper story.

All our chaff hives are furnished with the gable cover, this style suiting us the best. They are about 2 inches deep at the sides, and a sheet of tarred paper is placed under the roof-boards to save leaking, should the lumber be wind-shaken or split. Three-quarter-inch holes are bored in the ends of the gables, giving plenty of ventilation when wintering. Of course, the Higginsville cover may be used, according to the wishes of the bee-keeper; but we prefer a cover that will fit over the outside of the hive, telescope fashion; then there will be no chance for the weather to beat in and wet the chaff cushions or packing.

The bottoms of all our chaff hives are stationary, and nailed on, with tarred paper placed under the boards.

When the time comes to prepare the bees for winter there are always colonies in the single-walled hives that want to be packed in chaff. Well, it is not necessary to have any outside winter-case, as is usually recommended, to set over single-walled hives, but just take an empty chaff hive (we always have plenty left over after swarming), remove therefrom all the frames, and fill up the lower story with chaff or leaves. Next remove the top and bottom frames of the single-walled hive that contains your colony to be fixed for winter, and then set it inside of the upper story of the chaff hive, and pack all around with your packing material. Of course, your single-walled hive must rest on strips to enable the bees to work out at the upper entrance, as shown in the small hive sent as a sample.

Another special feature of this hive is that of having an entrance at both ends, so that two small or weak colonies may be wintered in the same hive with only a division-board between them. Two colonies in one hive will use less honey, retain the heat, and winter better than if placed in separate hives. Again, in rearing queens these same large chaff-packed hives afford ample protection to the nursing bees in cold, bad, rainy weather. Such bees must have protection in some way to insure the hatching of the young queens. Thus, in case of an emergency, these hives can be used, or will answer to almost any purpose that comes up in the apiary.

In using single-walled hives during the summer they should be made with square joints; but in using chaff hives we want them made with rabbets or laps, so that there will be no possibility of the weather beating in and wetting the chaff cushions or the bees. In summer the square joints in hives, if broken loose, will be fastened up again by the bees, while in winter they will not be.

It looks very reasonable that chaff hives made with square joints are a grand mistake, and will endanger the life of the colony by allowing the wind and rain to drive in. It will be noticed that all our chaff hives are made to prevent this by cutting a rabbet or lap clear around the hive, where the two stories come together, one-half inch deep and seven-sixteenths inch wide, the cover telescoping over the hive one-half inch, thereby leaving no chance for the water to get in.

The hives are all made of good average pine lumber, thoroughly seasoned and dry. The boards are all cut off square, and nailed under the old-fashioned way, depending merely on the strength of the nails in holding the hives together.

The manner of dovetailing the hives together is one grand improvement recently made in the construction of hives, and will be recognized by all practical bee-keepers; but it takes special machinery—something that all wood-workers do not have.

In conclusion, we don't want it understood that this hive will winter bees every winter without some loss; but we believe that (and our experience has proven this) if bees are in proper condition they will winter as well in this hive as in any chaff hive now made; but the special feature of this hive is in summer management, and the advantages it possesses over other hives of its kind.

Plattsmouth, Neb.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

PLANTING FOR HONEY.

Question.—I wish to sow or plant something that will bloom about the time white clover fails. What is likely to pay best for honey alone, or for honey and some crop of fruit or seeds?

Answer.—This question covers the ground of much discussion which has come about during the past; and I believe that the conclusion come to by nearly all practical bee-keepers is, that it does not pay to plant good land with any seed or plants for a crop of honey alone. Where waste places may be utilized, or something which will produce much honey be made to take the place of weeds, burdocks, or briers, then the planting for honey may be beneficial, not only to the bee-keeper, but to all others, as something of value to some one takes the place of that which is of value to no one, and that which is often worse than of no value, for the scattering of seeds from these waste places is often a nuisance to those who live where the winter's drifting snows may carry the seeds of noxious weeds far and wide.

If I were to think of planting for honey alone, I can think of nothing better than melilot, or sweet clover; for with us this plant commences to bloom at about the time white clover begins to fail, and continues to bloom from then to frost, to a greater or less extent. Some say that stock can be taught to eat melilot, in which case it becomes a valuable forage-plant, and pays better than almost any other forage-plant, aside from its honey-producing qualities; but, so far as I know, no animal will touch it in this locality.

Alsike clover is one of the best plants for both honey and hay; and for quick returns there is probably nothing better, taking every thing into consideration, than is this clover. But unless precaution is taken it will bloom at the same time white clover does; hence it is of less value than it would be, so far as honey is concerned, could it begin to bloom at about the time white clover failed. But it can be made to bloom at the time wanted by turning stock on it, letting them keep it eaten down short till about two weeks before you wish the bloom to commence, when it will give a good crop of blossoms and hay, though not quite as large a crop as it would if it could have had its own way.

If the questioner is young in years, and has patience to wait, I would advise him to plant basswood. In the list of honey-producing trees and plants it stands first in bountiful yields; and in the fine flavor and beautiful quality of the honey produced, it is second to none, while the day is coming when any thing in the way of basswood lumber will sell at a price that will make it profitable to the one who can furnish any lumber of that name. Fifty years from now this grand tree will have practically ceased to exist in our forests, and be little known save as it is planted by enterprising persons, or exists in some gorges or out-of-the-way places not easy of access. Where there were fifty trees in this section in my boyhood days of thirty-five years ago, there is hardly one now; and the few that are left are of the "second growth," or so crooked and scrubby as to be of little value for lumber.

To prolong the season so as to have honey in August, I would advise sowing buckwheat. The honey it produces is not of so great value as the white honeys, yet it comes at a time when it helps the bees in building up for winter, and brings a price in market that will pay for the labor expended, while the grain will amply pay for the whole raising of the crop, so that all that is secured by the bees and their keeper is clear gain.

REPLACING QUEENS.

Question.—Is it best to change queens that are three years old? I have some that were just as good layers as ever last fall, in my strongest colonies; but I am told that I should change them in the spring, as they will fail to give good results next season. How long do queens live?

Answer.—Best queens live to be four, five, and six years old; but the average life of queens is about three and a half years. The length of a queen's life, other things being equal, depends upon the tax that is put upon her egg-laying powers, and under our modern management queens do not average so long-lived as they did in box-hive days. I do not think that the question of age, however, should be considered in the matter of changing queens, except so far as it may be taken as a sort of rule to judge of when they will be apt to fail. I would not replace a queen so long as she lays up to her full average, especially in the spring, for early spring is a time when any queen that is of any value can supply all the eggs that her colony can care for and bring to perfection. A change at this time results in a loss of bees at just the time when each bee is of the greatest value to push forward the rearing of others for the honey-harvest; hence if queens must be changed I would advise waiting till about 20 days before the honey harvest; for the loss of eggs usually sustained through a change of queens will then be no loss at all, as they would produce bees that would arrive on the stage of action after the honey harvest is past, only to become consumers instead of producers.

As to the changing of queens, I pay very little attention to the matter where the colonies are working for honey instead of queen-rearing, for I find that nineteen colonies out of twenty will supersede their own queens as soon as they need changing; therefore it is a waste of time for me to be worrying about this matter, keeping track of the ages of all queens, etc., when the bees will look after the matter at the proper time. The bees will attend to this changing, and make fewer mistakes than you are likely to make, no matter how careful and wise you may be. Now, if any think Doolittle wrong in this matter, let them set apart a certain number of colonies to try each way, and a term of years will tell you which will pay you the better.

BEGINNERS QUESTION

BY E. R. ROOT.

J. B., Va.—The Langdon device did not prove to be a success, and was abandoned as not accomplishing the desired end. As to whether the bees fought when thrown together, I don't believe there was any trouble along this line.

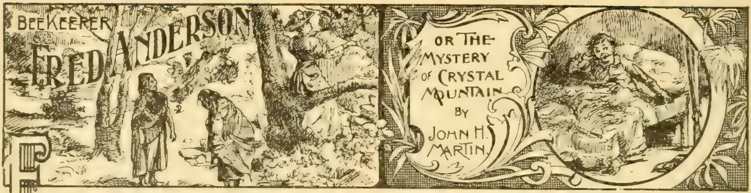
J. B., Mich.—A good deal depends upon your climate as to when you should take the bees out. Better a little late than too early. Better wait till about the middle of April or first part of May. The usual rule is when soft maples come into bloom.

E. A. C., Wis.—An absconding swarm may go anywhere from a few feet to several miles. Usually they go to the woods, from one-half to a whole mile from the point of starting. For further particulars see "Absconding Bees," in our A B C of Bee Culture.

A. R. W., N. Y.—1. As a general rule, bees fill the lower part of the hive or brood-nest full of honey before they go up into the supers. 2. Some bee-keepers have two entrances, especially if the hive is a tall one; but usually one is enough, providing it is large. 3. About 25 lbs. of sealed stores is required for a colony in a 10-frame Langstroth hive.

J. M. C., Ala.—The item in regard to glucose seems to be written by some one interested in the glucose industry. Even assuming that it is harmless, it has very little if any sweetening power, and is almost invariably used for fraud—that is, to piece out honey and other sweets. It is never sold under its real name, unadulterated, to consumers. Many of the statements in it are absolutely untrue. A few years ago the writer tasted glucose adulterated in various mixtures of honey; also tasted liberally of the pure glucose itself, and he had quite a sick spell after it.

G. B., N. Y.—It is not advisable to feed syrup during mid-winter. Better give them a mixture of powdered sugar and honey kneaded into a stiff dough. The probabilities are, your bees do not require any feeding all. The course you are pursuing tends to stimulate them unnecessarily, and will be more likely to kill them than to save them. If they have stores in combs, better let them alone and keep them as quiet as possible. The only information we can give you on the subject of winter feeding is that contained under "Wintering," in our A B C of Bee Culture.



FRED ANDERSON hurriedly drew on his clothing while stepping from his cabin, and saw, on the terrace below, Alfaretta dressed in white as he had seen her many times at her home. She was attended by two of the older squaws from the rancheria.

"How on earth did she get here?" said Fred, in an undertone.

In order to answer Fred's question, let us return to the Buell home, sixty miles away. After Matt Hogan had so hurriedly left the Buell wharf, as narrated in a previous chapter, Mr. Buell returned to the house, and, in company with Alfaretta, cared for the pony which Matt had left picketed near the hedge. Alfaretta petted and praised the pony in her demonstrative way, insisting meanwhile that it was a jack mermaid, and Jack it was thereafter called.

"How strange," said Prof. Buell to his wife, "that Ralph Hayden should turn up so near to us, and that, too, when we thought him dead! It must be nearly fifteen years ago that news came of his death in South America; but, my dear, I feel it my duty to hunt this man up; and, indeed, if it is our old friend and kinsman we have some things to explain and some things to regret."

"I suppose," said Mrs. Buell, "the regrets are over our change of name. The doctor may think it was done for purposes of deception. The thought of it, and of Alfaretta's condition, quite unnerved me when Matt delivered his message."

"Yes, my dear," said Prof. Buell, "now that you have opened the subject upon which we have been silent for years, I will say that I have many times regretted the change. Bull is a good enough name for any family. My ancestors all lived under it, and were proud of the name; and I have proved weak and recreant to the pride of my sires."

"This is at too late a date," said Mrs. Buell, "to repine over the past; the change is so slight that it does not worry me, and you know I never did like the name Bull."

"Yes," said Prof. Buell, reflectively, "but I remember you kept it to yourself until after we were married."

"Did I? Did I?" said Mrs. Buell. "How did it compare with my beautiful name, Valentine?"

"I know," said the professor, "that comparisons are sometimes made odious. I know that Valentine is a pretty name, but you appeared real glad, and so did your family, to have it changed to Bull."

"Oh me! oh me!" said Mrs. Buell, hysterically, "and I must take all the blame, all of it. I, a poor weak woman, must bear it;" and she rested her face upon her hands, and sobbed aloud.

"There—there, my dear," said Prof. Buell, softened by the sight of tears, "I think we had better drop this subject; let it remain buried again as long as it has been in the past. In the morning I will row up to Ghering's and find out from Matt where this Dr. Hayden lives. We may find another man, and all of these circumstances a mere coincidence;" and Prof. Buell stepped out of the house and shouted for Gimp, who was helping about the ranch for a few days. As no reply came to his repeated calls, he asked Alfaretta, who just then came up the walk, as to his whereabouts.

"Oh! Gimpy—why, pa, he is out by the river trying to change a sitting hen into a mermaid;" and then she laughed wildly.

"Goodness!" said the professor, as he started for the place indicated.

Just over the bank he saw Gimp, with a dilapidated-looking hen in his hands, ducking her head under the water, then holding her up; and while the poor hen gasped for breath he would shout earnestly, "Now, darn ye, set, will ye? darn ye! I'll learn ye to hogsnoggle the hul nest—darn—"

"Why, Gimp, what are you doing with that hen?" shouted Mr. Buell.

"Darn her, she'll set," said Gimp; "but I'll take it outen her," and the hen's head went into the water again with a "darn ye, set, will ye?"

"Here, Gimp," said Mr. Buell, "bring that hen right up here. Why, you've almost drowned her now."

"Yes, pa," said Alfaretta, "she's almost a mermaid."

"But that's the way mom allers cures a settin' hen," said Gimp. "Mom says yer can't drown a settin' hen. She ort t' had another dose; but I reckon she'd be tentified now to lay eggs, and not set."

"Well, Gimp, let the hen go; we will take your word for it, that she will not sit. Now I want you to mount Jack and trot down to the postoffice. Those Italian queens I sent for must have arrived in the last mail."

"Wa', I reckon so tu," said Gimp; "this'll be the third trip I've made, and mom says three times and out."

With a few divisions and a few colonies from the trees, Mr. Buell had made a respectable increase of his little apiary, and now the queen phase of bee-keeping was upon his mind; and upon Gimp's return this evening he was made happy by the safe arrival of three beautiful golden Italian queens.

The queens in their neat little cages, with the worker bees as escort, were examined with deep interest by the entire family, and Mr. Buell carefully studied the instructions for safely introducing the queen to a colony of bees. He was but a novice in bee culture; but the advances in bee-management in the last few years, and the plain instructions that accompany every phase of it, makes the attentive novice equal to any emergency, and the professor proceeded confidently, the next morning, to introduce his queens. One of the colonies was already queenless; and to this colony was due the queen movement on the part of the professor. When one colony greatly needs improvement, there are others that can be benefited. It required but little manipulation to place the cage containing a queen into the queenless colony, and leaving it so that the bees could release the royal occupant.

The next two colonies that needed improvement were black bees; and in the search for the black queens, as frame after frame was removed, Gimp saved Mr. Buell much time in the search, for it was his sharp eyes that found the queen in both instances. His training with Fred Anderson had not been without good results in various directions, and especially in the management of bees.

"Now, Gimp," said Mr. Buell, when the black queen had been caught, "what shall we do with her?"

"Do jes as Fred did with his old queens—pinch thur heads off."

"These queens look so nice, though black, I do not like to kill them," replied Mr. Buell, musingly. "Here, Gimp, just skip over to the shop and get a couple of those old queen-cages that Fred left here."

"That's fine," said Mr. Buell, upon Gimp's return. "We will now save these queens and take them up to Matt Hogan; he may need them."

"That are so," said Gimp, slowly; "and ef you give Matt the queens, mebby he will give you suthin'. Wish he'd give us his shotgun."

"Why, Gimp Dawson," said Mr. Buell, in evident surprise; and then, said he, impressively, "Gimp, you should not look upon a gift in that selfish way. It is our duty to help our neighbor in every way we can; but when we help that neighbor we should not expect to receive any thing in return. Why, my dear boy, if I expected Matt Hogan to give me any thing in return for the queens it would destroy much of the pleasure I have in making the little gift."

"That must be so, seein' you say it," said Gimp, in a hesitating tone; "but dad allus said real good folks never got rich; they was jest respectable; but dad was a curus man."

"Yes," said Prof. Buell, in a musing way, "just respectable; and in that way many a poor man is rich and many a rich man poor. Oh how mistaken is the world respecting riches! Sordid wealth has its pleasures for a day. The wealth of a day well spent, of helpful deeds, are eternity's jewels.

"How far that little candle throws its beams,
So shines a good deed in a naughty world.

"Yes" (and as he said it Prof. Buell's hand was laid gently upon Gimp's shoulder), "you should learn from the good book that 'a good name is rather to be chosen than great riches, and loving favor rather than silver and gold.' My dear boy, remember it." The queen introduction had been completed. Gimp was now directed to get the boat in readiness, and soon the professor and Gimp were rowing toward the Ghering ranch.

From Prof. Buell's personal knowledge of an enthusiastic lover of the honey-bee, he expected that, after so many weeks' absence from his pets, Matt Hogan would be examining his bees; and, as he fully anticipated, so he found Matt in his apiary.

"Well, Matt, how do you find them?" said Prof. Buell, as Gimp and himself adjusted their bee-veils and approached the hives.

"Sure, and they are doin' as will as can be expected of thim, seein' the ap'ry has had no father to it for so many days. The corner hive over there was undermined by the badgers, and it was cocked up sidewise, like auld Tim Brady's hat. The skunks have been scramblin' in front of some; covers were awry, and the waads choked the front and the raar of the rist of them; and I am sorry, professor, to find three of me hives where they are all poor motherless children. There's no quaans, and the dear little baas are as lonesome as—as—I am widout me Biddy Malony."

"Well, Matt, I am pleased to be able to make glad the poor motherless children in two of those hives. I have been introducing Italian queens to some of my colonies, and here are two black queens. I did not like to kill them, and thought possibly you could use them, and surely you can."

Then Prof. Buell handed the cages to Matt, who was much surprised and gratified over the opportune gift; and with much gusto he said, "Prof. Buell, it's mesilf that'd be after putting yees name wid the saints. Nobody but yeersilf would think of helping a poor fellow loike me; but, professor, it seems yees are always thinking kindly of yees neighbors."

"There, there, Matt; let me help you introduce the queens," said Prof. Buell, by way of an interruption to Matt's grateful expressions. When the work had been accomplished they sat down upon some empty bee-hives, and Prof. Buell said: "Matt, I came up here to ask you about this Dr. Hayden you spoke of yesterday. Where does he live?"

"Sure, I am not knowing where, professor. He said he lived in the mountains; and as to its bein' the Sary Nevada, the Coast Range, or toward ould Shasta, it's a sacret he held fasht to."

"Rather indefinite," said Prof. Buell, "but did Fred go off with this doctor, not knowing where he was going to?"

"I think he did, sur, and its yeersilf that wouldn't question the doctor, for he is that kind, like yeersilf, professor. Its mesilf that'd not be flathering yees, but I'm thinking there's a family resimblance between yees."

"Possibly," said Prof. Buell; "I knew a doctor Hayden many years ago; in fact, I had a cousin bearing that name. and I would go a long journey to find this doctor. Peradventure he might be the same."

"An' sure it was Frid and mesilf that mentioned yeer name furninst the doctor, and he said neither aye or nay to it. He ounly said it would sound better if the name was Bull—plain Bull."

The color of the professor's face heightened, and in a nervous way he arose suddenly from the hive upon which he was sitting and said, "Well, Matt, I hope you will have the best of success with your bees. We will not have Fred Anderson to give us instructions, so we must compare notes often, and instruct each other. Hello, Gimp! we must pull for home."

When the two disappeared over the river bluff, Matt Hogan, with hands in his pockets and eyes bent upon the ground, was evidently struggling with a perplexing problem. Finally, in an undertone which increased in intensity, he said, "To me own thinking, there's somethin' mysterious about this whole business. If I says Adrietta, up go their hands in amazement. If I says Hayden, off goes Mrs. Buell in a swoon; and to-day it's Bull that stirs the professor off his seat, off home, and red in the face. Now, be gorry, I believe I'll shout calf to meesilf, and run to cover in the chapparal."

By
ER
Root
Editorial

"PATENT PROCESS FOUNDATION."

MR. HUTCHINSON publishes an item that *apparently* gives an unfavorable showing to the new Weed foundation. In his introductory he says: "They have been experimenting with different brands of foundation over at the experiment station in Canada." Then he gives two paragraphs from a report that goes to show that the "patent-process" foundation gave the poorest results of any of the samples tested. The time this report was made (I think it was in 1894) was *before* Mr. Weed conceived the idea of making sheeted wax by his present plan. The article designated as "Patent Process" was not the same as is *now* made, and which has received the universal indorsement, both of experiment stations and private individuals. The experiment in question was, according to the experimenter, conducted late in the season, and the results were not, therefore, satisfactory.

FACTS AND FANCIES ABOUT THE NEW DEEP-CELL-WALL FOUNDATION.

MR. LEAHY, of the *Progressive Bee-keeper*, says that the putting of this article upon the market, to "accumulate wealth, and prostitute the teachings of the Bible," is "adulterating that which is spoken of as *sweeter than honey;*" that "they say it contains no more wax than the thinnest foundation." If Mr. Leahy will show us *where* we have claimed it was as light I shall be greatly obliged; but I have said we *hoped* we might make it—that we had not yet. Again, he says: "I have before me a sample of this luscious foundation, the side walls of which are ¼ inch from the base. I have also a piece of thin and extra thin foundation." Then he goes on to show how by weight the foundation weighs less than half the "artificial comb," as he calls it, and then adds, "It is also claimed that this will be no more expensive than comb foundation. This looks fishy to me." I never said this. I stated distinctly, when we put out these samples (see p. 80), that they were heavier than we expected to make in the future; and later on (page 129) I stated that the walls were nearly three times as heavy as cell-walls of natural comb, but that bees would thin it down and make it as thin as the natural. Further on, Mr. Leahy believes the product will sound the death-knell of comb honey; that there is no advantage in the new article except to the manufacturers. In the first instance I have shown that Mr. Leahy has set up a man of straw, and, of course, knocked it over. In the second instance he has put forth fancy rather than fact. Practically the same claim was made in regard to foundation, and yet the foundation business has not hurt the honey business, but has been of great benefit to it.

In the same issue of the *Progressive Bee-keeper*, Mr. Doolittle editorially speaks in high praise of the new article, and winds up by saying: "Nor do I believe the Roots will risk their reputation on any thing which will injure the honey markets by pushing it to the front," and Mr. Hutchinson in the *Bee Journal* gives expression to the same sentiment.

In the *American Bee Journal* friend Bingham says of the new product: "Allow me to enter a protest against more wax in comb honey." Mr. Bingham had probably not seen what we published on p. 129, wherein we stated clearly that our object in the new product was to get *less* wax in comb honey. I don't believe he meant to accuse us of trying to do things that we are not; and further on Mr. Bingham says: "No one can blame the mixers for mixing low-grade honey; neither can they be blamed for buying drawn combs to put in bottles of honey. It would be no worse to put combs made of beeswax in honey than to put honey in such combs. As to such combs doing away with adulteration, nothing can so add to it." Mr. Bingham has fallen into the error of believing that the new article is drawn-out comb, and that it can not be distinguished from natural bee-comb. It is, in fact, nothing but deep-cell foundation with flat bases. The walls in any case will be less than half depth. The regular mixers would hardly think of putting such an article in honey, for it could be detected at a glance, and a transparent fraud won't pass.

In the same issue of the *American Bee Journal* Mr. Hutchinson still insists that, without trying it, the new deep-cell foundation is going to make a great "gob" in the mouth, and says: "I feel absolutely certain that its use will greatly impair the eating quality of comb honey;" that "the article will be tough and leathery." Why does Mr. Hutchinson speak so positively when he has not tried the comb from it?

Elsewhere in the same article he goes on and describes how he *thinks* the new foundation is made, detailing Mr. W.'s *old* experiment — how the cell walls are formed, and how the base is attached in some manner. Mr. Weed's original method of making the article is very different from his present one. He now uses a press, similar in principle to the old Given machine, but uses hydraulic pressure instead. If the cell walls were formed, and the base stuck on, very likely it *would* make a "gob" in the mouth. And here I don't believe, either, that Mr. Hutchinson *meant* to cast discredit on a thing by attributing to it certain qualities which it had not, and by telling how it was made when he didn't know any thing about it. Further on Mr. Hutchinson says, and very truly, "Great was the kick against comb foundation when it was first introduced." Exactly; and it *looks* as if history were going to repeat itself on a small scale.

The brethren must not forget that we had been experimenting with this thing for about a year before we made it public. The quality of the comb honey, and the manner in which the bees accept the comb, have led us to put into it hundreds of dollars. We do not even now claim that we shall be able to put it on the market at such prices as will be within the reach of bee keepers — the future will have to decide that; but we are in *hopes* we can. And please remember, too, that we consulted *beforehand* some of the brightest and most intelligent bee-keepers in the country, to whom we submitted samples. Among them I may mention such men as G. M. Doolittle, R. F. Holtermann, P. H. Elwood, Dr. C. C. Miller, Hon. George E. Hilton, M. H. Mendleson, Byron Walker, Geo. W. York, E. Whitcomb, besides all our local bee-keepers. Some of the men saw the machinery, and saw the product in the hives, and the product after it came out.

You may depend upon it, brethren, that we shall not put upon the market any thing that will in any way injure the comb-honey business; and friends Hutchinson and Doolittle have our thanks for backing up the statement. If we were to do so we should be doing ourselves more injury than any one else — mark that.

IMBEDDING FOUNDATION ON WIRES BY MEANS OF ELECTRICITY.

Having recently made some improvements in our electrical imbedding-outfit, and having prepared new directions and new engravings, we thought our readers generally might like to see how the job is done. The work is executed very much better and more rapidly than by the old-fashioned tracing-wheel plan.

DIRECTIONS FOR OPERATING BATTERY FOR IMBEDDING WIRES IN FOUNDATION.

Into a wooden pail pour about two gallons of boiling water, and empty the accompanying package (1 lb. bichromate of potash). Stir it well, and allow it to become dissolved. This may take several hours; then pour in half a pint of sulphuric acid. In pouring this in, be careful to pour slowly, and do not get any of the acid on the fingers or clothing. It is hardly safe to ship this, and you will, therefore, have to get it at your nearest drugstore. Now procure a couple of gallon crocks, such as are used for holding butter. As these can be bought for a few cents we do not ship them, on account of their being bulky and heavy, and liable to break the delicate carbons in the package during shipment.

Into each of these gallon crocks pour an equal quantity of the solution. Place them on the bench near where you expect to work. Into each jar set a plate (Fig. 2) with its set of carbons, letting the plate itself rest on the top edges of the jar. Now insert the two zinc plates (as at Fig. 3). By means of one of the wires, connect the zinc (A Fig. 2) of one of the jars to the cast iron plate of the other (at B Fig. 2). Next fasten the terminals of the imbedding-fork (Fig. 4) to the two remaining screw connections—one wire at B Fig. 2 in one of the plates and one at A of the other. If you have done your work right, one wire of the fork will be attached to one zinc and the other to one cast-iron plate, and one wire will connect the two batteries. In the cut the wires are not connected right, although as there connected the batteries will work.

You are now ready for work. Lay a wired frame on the bench; over this a thin sheet of foundation, letting it come directly in contact with the wires. Now press the two feet of the fork (just inside of the end-bars, Fig. 4) down on two opposite ends of one of the wires or strands as shown in Fig. 1. This will cause a current to pass through that strand, and heat it. The moment the contact is made, press the fingers of the other hand along the wire until it begins to show through. Lift the fork up, and in the same way imbed the next wire. A mere stroke of the fingers back and forth once ought to cause the wire to sink into the foundation. Proceed thus with all the frames you have, after which lift the zincs out, as they corrode and waste away.

When one set of zincs is used up, take the others out and fasten them between wooden cleats, as the first set was, and connect on the binding-posts. When these are used up, ask your tinner to cut some pieces from his scrap zinc, same size. About once in 100 or 300 frames it may be necessary to pour in a little more sulphuric acid to "tone up" the solution. Sometimes a little stirring of the liquid will answer the same purpose.

We send along a few extra carbons (black sticks), so that, if any are broken in shipment, they can be replaced. A little melted wax or paraffine should be painted around the carbon next to the iron, to prevent the salts from creeping up after the battery stands.

The zincs will work better if coated over with mercury. To do this, get a little muriatic acid; moisten a rag in it, rub it in mercury (a few cents' worth), and then rub it on the face of the zinc. This will give the zinc a coating that will make it last longer.

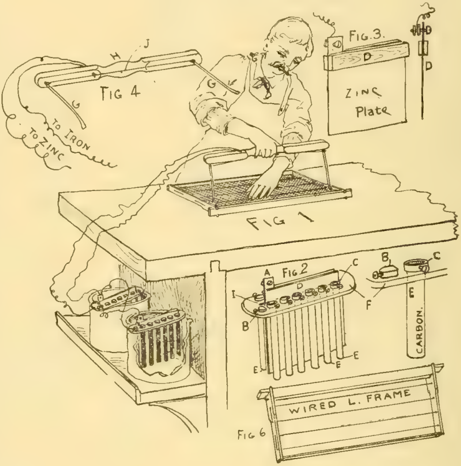
The accompanying imbedding-fork (Fig. 4) is made to fit a Langstroth frame with the wire strung as shown in the accompanying frame (Fig. 6). If your frame is odd sized, or if you use the L. frame and wire perpendicularly, it will be necessary to change the distance between the feet of the imbedding-fork.

Keep all wires and battery connections clean, and be sure the zincs do not touch the iron or the carbons.

If the wire heats up quick enough to melt *through* the foundation, lift the forks off the wire quicker.

Some of our readers of an electrical turn of mind may prefer to make their own outfits. The carbon sticks are the ordinary electric-light carbons, and are fitted into holes in a cast-iron plate, and held secure by set-screws—see Fig. 2. There is a slot in the plate between and parallel to the carbon sticks. This is to admit the sheet of zinc. A piece of inch board having a parallel row of holes for the carbons may be used instead of the cast iron; but the carbons must all be connected together by a naked copper wire wound around each carbon at the top. But this home-made affair is not nearly as effective as the cast-iron plate with its set-screws, for the latter make what is known as "good electrical contact."

Fig. 4 is the imbedding-fork. H is a strip of wood as long as the brood-frames. In each end is fastened two heavy iron wires flattened at the ends. To these wires are attached the battery-wires running along the groove J, uniting and passing through a hole near H.



The zinc plate is made of ordinary sheet zinc cut as shown in Fig. 3. Two strips of wood, as at D, are held in place by shellac or glue. It won't do to use nails, as the heads and points might stick through and touch the carbon, and so "short circuit" the battery—that is, spoil it. The theory and practice is, to send a sufficient current through the wire to heat it. Once heated, it is an easy matter to imbed it into the foundation.

MR. E. B. WEED, THE INVENTOR AND EXPERT WAX-WORKER.

IT would be a revelation to some of you if you could see the improvements that have been made in making comb foundation. The old way was to dip a thin board into a deep vessel of wax enough times to secure a sheet on both sides. It was then cooled in water, and the film stripped off. It was next run through the mills piece by piece, and each time it was necessary to "pick" and "claw" at the ends of the sheets sticking to the rolls as they came through. This operation did not improve the face of the mills, or the foundation. After the sheets were milled they had to be piled up, and cut to a size by hand, causing anywhere from 25 to 33⅓ per cent trimmings that had to be melted over again. Last of all, the sheets were papered by hand and made ready for boxing.

Now if you were to peek into our wax-working department you would see an attendant pick up a big cake of yellow wax (60 lbs.) and set it into the machine, as it were, and then he leaves it and goes about other work. After it comes out it is converted into a long continuous sheet rolled up on a bobbin. This bobbin is then put into another automatic machine by the same or another attendant; the machine is started, and when this long bobbin of wax begins to unreel it is fed into the comb-mill, and is cut to size *without waste.* There is a click-clack, and the trimmed sheet is next made to lie squarely over a sheet of paper of the same size as itself, and pick it up; another click-clack, and it takes a hop, skip, and a jump on to the pile; and fingers almost human, but as lifeless as your barn door, true up the pile as evenly and nicely as you could do it with your fingers.

MR. E. B. WEED.

Nearly all of this is the result of the brains of one man, Mr. E. B. Weed, whose picture I take pleasure in presenting at this time. If he had done no more, his happiness would be all but supreme. But he is the inventor of the new deep-cell drawn foundation, to which I have referred in former issues. Even before he came here he was the inventor and patentee of a number of other articles, one of which I know he sold for a round sum.

Like every inventor, he has had his discouragements. His machinery and his appliances for wax-working all seemed to fail to work until he ran across the skilled employees of The A. I. Root Co., and the confidence of the firm itself in his inventions. Many and many a time it looked as if failure was *sure* to meet him as it had done when he worked for others having less confidence in his wild (?) schemes; but Mr. Weed, undaunted, and with a hope almost superhuman, and with the assurance that our firm would back him, would work and plod away until success was his.

When trying to solve a problem I have seen him so excited, and so thoroughly absorbed, that he scarcely knew what was going on about him. I remember once when one of his machines got into a "balky spell" (at the start they all had 'em). In order to make his kid "come to time," as he called it, in passing to the other side of the machine he collided with one of the women-folks carrying a pile of wax—knocked the pile over, and the woman too, nearly, but scarcely seemed to realize that he had had a collision and scattered the nice wax all over the floor. I have seen an idea seize him so quickly when walking, that, when he turned about face in his sudden, nervous way, his feet slid out from under him, and down he went in an ungainly heap. But he quickly regained his feet, and, so absorbed was he, that he seemed almost totally ignorant of the episode; but *he had the idea;* and notwithstanding I was convulsed with laughter he went on to tell me what it was; and as I continued laughing he innocently asked what I saw so funny.

During the last few days, Mr. Weed has been fussing (I guess that's the word) with a machine that would *not* do his bidding. It had balky spell after balky spell. He *knew* it *would* work, but was so tired out when I came into the room that he could not think any more, much less see where the naughty "kink" was. The next day, after a night's rest—if, indeed, he rested at all—he went at it again with a determination that I knew meant the machine had *got* to work, *and it did;* and to-day he sees the triumph of his perseverance and skill with that particular machine. The benign smile that now plays upon his face is contagious, for one can not but admire such pluck.

While he does not profess to be a mechanic, he seems to have a remarkable perception for mechanical possibilities. He will grasp an idea in an instant (he doesn't always tumble down). As indicative of his quick perception, he will take a whole page of reading-matter on the most abstruse subject, catch the whole idea, read every word of it in a tenth of the time it takes people generally.

Just where he will turn his inventive genius after he has made the wax business reach its summit, is hard to say.

OUR HOMES.

Fear not them which kill the body, but are not able to kill the soul; but rather fear him who is able to destroy both soul and body in hell.—MATT. 10: 28.

THE CRUSADE AGAINST CIGARETTES AND TOBACCO.

In scanning the daily papers of late I have felt like saying, "May the Lord be praised that the United States of America is finally waking up to the fact of what the cigarette business is doing every day to kill off our boys, both body and soul, where it is allowed to go on unrestricted." The teachers of our public schools have become so well aware of the fact that it kills the intellect more speedily and surely than any thing else that has ever started up that they are making vigorous protests everywhere. Tobacco is surely bad enough in its effects on the mind of the boy in his teens; but cigarettes seem to be tenfold more deadly. Perhaps one secret of this is the fact that morphine or opium in some form enters so largely into their make-up. For years past we have had terrible stories of the baneful effects of the opium habit in China, and among the Chinese in this country. The manufacturers of cigarettes are so devoid of conscience that they have no scruple whatever. I have sometimes thought that, even if they actually *knew* the result of their work is death to our boys, still they would not hesitate so long as the traffic puts a few nickels in their pockets for each boy killed. I am making terrible statements, I know; but ask the teacher who has care of your children and of your public schools if I am not correct about it. Ask your pastor; ask your family physician; and if the latter is not addicted to the use of stimulants himself, I think he will admit what I say to be true.

One reason why cigarettes are used so much more than cigars is because they are cheaper; and the fact that a *very small* amount of opium put into each cigarette will teach the boys the opium habit is one reason why they are afforded so cheaply. It is a terrible thing for a grown-up man or woman to be an opium-eater; but how much *more* terrible is it to think of starting children ten or twelve years of age in such a practice! One State in the Union has already, in view of these things, passed a prohibitory law. They declare broadly that cigarettes shall not be manufactured nor sold in the State of Tennessee.* It ought to stir the heart of every one of us to see the South taking the lead in such reforms as this. A similar crusade seems starting up all over our land. A letter right before me gives us a glimpse of what has been done:

Mr. A. I. Root:—Your good friends Dr. Miller, of Marengo, Ill., and Mr. York, of Ravenswood, became interested in the great fight our Christian Citizenship League is making against the tobacco habit. I am now here in the interests of a bill absolutely prohibiting the manufacture and sale of cigarettes in the State of Illinois. The next issue of the paper of which I am editor will be a special anti-tobacco number. Please write me briefly on receipt of this your plan for rewarding abstinence on the part of tobacco-using bee-men. It will make a good point for the paper.

Should you be blessed with something to help us in the expenses of getting out our large special issue it will be most gratefully received. You could find no other avenue through which the money could do more for the cause which, I am told, is near your heart. Yours for clean manhood,

(MISS) LUCY PAGE GASTON,
Ed. *Christian Citizen.*

Springfield, Ill., Feb. 24, 1897.

In answer to the above, permit me to reply briefly, not only for the benefit of the writer of the above, but that the older readers of this journal may know something about the crusade that GLEANINGS started against the use of tobacco, and has kept up for almost twenty years past. It started something in this way:

I was visiting a young bee-keeper, and he lighted a cigar before attempting to open one of the hives. I remonstrated, and he said he was not in the habit of smoking; in fact, about the only time he used a cigar was when he wanted to handle his bees. I told him if he would throw away his cigar, and promise not to use tobacco again in any shape or manner, I would give him a nice new bee-smoker. In this he could use rotten wood, and therefore would not be obliged to have tobacco around in any shape.

"But suppose I should get back to using tobacco again—must I then give you back the smoker?"

"No; but you may pay me the price of the smoker."

As there were several other bee-keepers and others near by, this occasioned some merriment.

Another young man said, "If I promise to give up the use of tobacco may I have a smoker too, on condition that I pay for it if I ever go back to the tobacco habit?"

I told him he could have one on the same terms. If I remember correctly, a mother or a sister gave me a bright encouraging smile at about this juncture. The incident was related in GLEANINGS, and I made the offer to all its readers, that every tobacco-user who would take a pledge similar to that above, and have it published in the next issue of our journal, could have a smoker on the same terms; but if he went back to using tobacco he was to pay for the smoker, and also permit us to publish his letter acknowledging his going back to the habit. This was a very simple thing, but it seemed to strike bee-keepers at large just right. For many years quite a string of pledges was published in each issue of GLEANINGS; and a little later on we had enrolled a number of lawyers, doctors, and ministers of the gospel; and some pledges came from women in the Southern States, where it was then common for women as well as men to use tobacco.

When the calls for smokers began to come pretty thick and fast, some of the brethren said I might get "swamped," and have to back out of my offer of a smoker free of charge to any one who would give up tobacco. I told them I had no fears in that line; that the great God above would provide as many of the smokers, and stamps to mail them with, in such an enterprise for temperance and purity as I needed; and as I look back over the years that have passed I think I may truly say he has done so.

Several years ago when we hunted up, we found we had over a thousand pledges. We have not kept the number of those who afterward paid for their smokers, but there were very few comparatively. You see, when a man makes a public statement through a journal that is more or less read by his own family and the neighbors, he feels a little backward about going back to his old habit. As the price of the smoker we have been giving away is only

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*In answer to an inquiry, we have just received the following in regard to the stand the State of Mississippi takes, not only in regard to cigarettes, but to cigars and smoking-tobacco:

☞ The code of Mississippi imposes a tax of $50 on each dealer in cigarettes and cigarette paper. This law practically excludes cigarettes from the country stores and from the villages. The code provides further, that if any person shall sell or give cigarettes, cigars, smoking-tobacco, or snuff, to a minor under the age of eighteen, without the consent of parent or guardian, given in writing, he shall be deemed guilty of a misdemeanor, and punished by fine or imprisonment. Code of 1892, Sec. 1005. T. S. FORD.
Scranton, Miss., March 2.

50 cts., or 70 by mail, there is not very much at stake any way. A man can easily be released from his promise if he should at any time so desire. Below are the conditions on which we have been sending these smokers during the past years:

> First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

Before dismissing the subject of cigarettes I submit a letter from my daughter, Constance M. Root. The facts came under her observation while she was making a visit to the State Asylum at Columbus, for educating the blind children of our State.

> During a recent visit to the Ohio Institution for the Blind, at Columbus, I found myself constantly wondering what had caused these boys and girls to be so afflicted; and on questioning the teachers and others I found that a great many of them were in that institution as a result of transgression of God's and nature's laws. The sins of the parents are being visited on their children.
>
> But to me the saddest case in that institution is that of a young man who brought this terrible affliction on himself. He is the son of well-to do parents, has had many advantages of education and refinement; but like many other boys he contracted the habit of cigarette-smoking while very young. He was working into his father's business, and had a great desire to appear manly. The habit grew on him to such an extent that he was seldom without a cigarette in his mouth during the day. When he was about eighteen years of age his health suddenly broke down, and for months he was in such a nervous state that he could not endure the slightest sound in his room. By the doctor's orders he was finally removed to a hospital, where not even his mother was permitted to see him. When he at last crept back to a degree of health his sight was hopelessly gone. He can see just enough to distinguish light from darkness, and to avoid running into people on the street; but his physicians say he can never hope to see more than that; and not only is his sight gone, but the poison of the cigarettes has injured his lungs to such an extent that it is very difficult for him to draw a long breath. He may some time completely regain his health; but his life seems blighted by the loss of his sight. I said, "seems blighted;" but that is only to those who are not well acquainted with him. He has recently become an earnest Christian, and I believe God has yet some work for him to do in this world. I know he means to fight the tobacco habit in every way he can, and it is by his permission that I tell these facts; for although he is very sensitive, he is willing to have his sad story told if there is a possibility that it may keep some other young man from suffering what he has.
>
> It may be well to add, that all the physicians who have had the care of him say that his blindness is undoubtedly the direct result of his cigarette-smoking. His physician published an account of his sickness and subsequent blindness in one of the daily papers in the large city where he lives, giving the cause as cigarette-smoking. One of the dealers in that part of the city said his sale of cigarettes had fallen off fifty per cent since that time.

THE PROGRESS OF THE CIGARETTE CRUSADE.

We take the following from a recent issue of the Chicago *Advance:*

> The campaign against cigarettes is increasing in strength. Like most reforms of the kind, it is largely dependent on women; but women are a persistent power in these days, and they are pushing anti-cigarette bills into the legislatures of the various States. In Tennessee the governor has just signed an absolutely prohibitory cigarette law. The Connecticut law forbids the sale of cigarettes to persons under 16 years of age. The Kentucky law makes the age-limit 18 The Massachusetts law, which is generally obeyed, forbids the sale of cigarettes to minors. The anti-cigarette law in Iowa was declared unconstitutional by the Supreme Court. In North Dakota a prohibitory law was passed two years ago, but it has remained a dead letter. In the Colorado legislature the lady members stood bravely for a bill to stop the sale of "coffin-nails," as cigarettes are appropriately called, but the male contingent of the body laughed the bill down. The Utah legislature almost unanimously killed the bill as soon as introduced, and the South Dakota legislature did the same. But these legislatures probably think that there are too many people in the world anyhow. In the Alabama legislature the House passed the bill, but it was defeated in the Senate by a trick. In a majority of the other States, bills are pending in the legislature, and they will slowly, but surely, get on the statute-book, for the cigarette is too deadly an enemy to permit this movement to go up in smoke.

NOTES FROM THE EVANGELISTIC WHEEL.

I was making calls in the village with the pastor. We called to talk and pray with one of his former deacons, now a well-known drunkard. Of course I was interested to know how such a terrible fall came about. The pastor told me the circumstances. He had been a drinking man years before, but had become converted, joined the church, became an earnest and consistent working Christian, and was finally elected deacon. All had nearly forgotten his former habits. One fall they had some cider in the house. The wife, a church member, and his grown up son were drinking, and asked him to do so. He refused decidedly, whereupon they began to laugh at him, as a very weak and foolish man. They kept this up till, chagrined and mortified at what they called his weakness, he yielded, and drank the cider. From that time he has been a drunkard. A. T. REED.

The above should not only be a warning to us all, but it should be a *terrible* warning. I know it is true, because I have seen the same thing myself—yes, in my own neighborhood, here at home. It seems as if nothing could make people understand—even good Christian people—the danger that constantly hangs over the reformed inebriate. People have sometimes wondered what that strange passage in Matthew means: "A man's foes shall be they of his own household." The illustration that Bro. Reed has given us makes it clear. In following up the story of many a sad downfall, I have found that the victim was not nearly as much at fault as were his *friends;* yes, and many times the members of his own family. This poor man knew his danger, and very decidedly refused to tamper with the old temptation. His wife and his grown-up son laughed at him for his weakness. It was so long since he had been addicted to strong drink everybody had forgotten it. To them the idea was ridiculous and absurd, that he, a worthy deacon and Christian worker, should drink to excess. May God help us all. Dear friends, I have had glimpses of the bottomless pit, but it was long years ago. I often look back at those old times and wonder if it could really have been I—*myself.* The idea that *I* should long for or even think of anything so foolish and wicked! Why, it is absurd. I have often had this feeling; but, dear friends, within a single hour after, that old temptation has come back, and has towered above me like a veritable giant. As I felt his clutches closing down upon me I could only say as did poor Peter, "Lord, save, or I perish." Apples have been exceedingly plentiful, and no doubt cider is also, in many places now. Many good people drink it, and make sport of "temperance fanatics" because they refuse to touch it. Remember this sad story, and do not ever again urge anybody to touch or taste that which conscience tells him to let alone. And can't we go a little further, and say with Paul, "If meat maketh my brother to offend, I will eat no meat while the world standeth"?

Who redeemeth thy life from destruction, who crowneth thee with lovingkindness and tender mercies.

By some mistake my closing paragraph was omitted from our last number, and I have thought best to give it here:

After I got to feeling pretty well I felt troubled because my old interest and enthusiasm seemed lacking. Even when the greenhouses were doing their best along in the middle of February I did not seem able to scrape up much interest in seeing things grow, as I usually do. I prayed over this matter. I asked God to tell me what he would have me do with the strength that seemed slowly coming back. I wondered if it was his will that I should turn my thoughts to something else than to cultivating the ground, testing new plants, etc. Well, *that* prayer has been answered. I am now rejoicing in a degree of physical strength that makes it a pleasure to use my muscles. I am rejoicing, too, in enthusiasm and interest in all that is going on about me, especially in this matter that I have followed for so many years—cultivating the soil. I feel sure that I am doing the work God wishes me to do. And right here comes in that last part of our text, "Who redeemeth thy life from destruction." Without faith in God, where should we be? Then, again, how beautiful are those closing words, so full of promise—"*Who crowneth thee with lovingkindness and tender mercies*"!

NOTES OF TRAVEL

BY A. I. ROOT.

THE UNUSED FORCES OF NATURE.

Tempe lies about nine miles from Phœnix, on the opposite side of Salt River. After you cross the big bridge at Tempe there is one of the finest pieces of road for wheelmen imaginable. It is made of a sort of limestone found in the vicinity, and it packs down like asphalt. I frequently made the nine miles by moonlight. A good many times when I wanted to meet some of the bee-friends to get an early start, I would take the road by moonlight, before daybreak. When I had been there only a few days I started home late one evening from Phœnix. At the Half Way house one of the irrigating-ditches had broken through the embankment, and the road was covered with water. After picking my way around on the banks I got back on what I supposed to be the main road. I began to think after a while that things looked rather strange, even by moonlight; but I thought I would push ahead until I found a cross-road to make my way back to my route. No cross-road appeared, and I knew by my wheel that I was ascending at a pretty good speed. With such beautiful roads, however, it was not at all difficult. Finally the roar of one of the waterfalls on the great canal admonished me that I was getting away off in the wilderness, and it was also getting to be pretty well along in the night. I stopped at a house and inquired. The people were just going to bed; but our host opened the door an inch or two, and, after looking me over, he evidently concluded I was telling a straight story. In these regions they have reason to be a little suspicious of strangers who come around after bedtime. He said there was a cross-road, and that I had come past it; but that if I would follow along down the banks of the canal I would reach the Tempe bridge, without any difficulty.

Now, I do not know how many waterfalls I passed by on that wonderful road. The sound of rushing waters is always inspiring to me, and under the light of the full moon every thing seemed weird and romantic. The mountains that loomed away up in every direction I might look; the huge cacti, as tall as telegraph-poles, and the different features of the desert, made me feel like building air castles. Shall I tell you of the air castles I built? This irrigating-canal has been pouring great volumes of water over these numerous waterfalls year in and year out for I don't know how many years past. Waterfalls are placed along at intervals because they want the water lower down. Any one of them was equal to the task of moving a turbine wheel that would furnish power to light the whole city of Phœnix, and perhaps run all her electric cars besides; and yet these falls are scarcely five miles from the city. Wood and coal here cost tremendously. Nobody has as yet ventured to make the connection.

A few days later somebody told me that, within about three miles of Tempe, there was a fall of forty feet in the water of the great irrigating-canal; that a company was organized, and they were already putting in an electric plant. Romeo (my brother's son) and I mounted our wheels, and were soon on the ground to investigate. Sure enough, there was a turbine wheel of 200 horse power already in place. The man in charge invited us to go down inside of the great water-motor and see how it was made. While we were talking he seemed a little surprised at my enthusiasm in the matter, and—what do you think? Why, he is a bee keeper, has quite an apiary in that neighborhood, and had just been reading a bee-journal when we came up. He told me the turbine was exactly like those in use at Niagara Falls. They expected to turn the water on in a few days. While they were waiting for the necessary apparatus to convert the power into electricity they were going to use this great water-wheel to pump more water from a well just sunk in the gravel near by. You see, where there is a considerable *fall* in the irrigating-canal, and at the same time not enough *water* in the canal, they are going to take the power of the waterfall to lift more water from a lower level.

Now, with your permission I wish to digress from my travels just a little. Salt River Valley, Arizona, is not the only place where immense volumes of nature's forces are going to waste. The wind that is blowing over the roof of your house while you read this can be harnessed with little trouble and expense. It will light your homes with the most beautiful light in the world; it will warm your rooms and cook your food; turn the coffee-mill, grindstone, operate the churn, saw the wood, shell corn, and crack wheat—see page 170. What will it cost? Well, great factories are at work making short cuts to reduce the cost, every day. In fact, while I write quite a busy little factory is running on our own premises, for the manufacture of electric motors and dynamos. It is called the Ahlm-Edwards Electric Co. You can get one of their circulars by addressing them at this place. Last week they showed me a little dynamo not much larger than a good-sized watermelon. If I am correct, it takes one horse power to work it, and it will run twenty lamps of sixteen-candle power each. The price of this machine is now reduced to about $70.00. To light your house by wind power you will need a storage battery to operate when the wind does not blow. I do not know at present who furnishes these storage batteries; but I think the Aermotor folks, of Chicago, can tell you.

HIGH PRESSURE GARDENING

NOVELTIES IN THE WAY OF NEW FRUITS, ETC.

Like all the rest of you, I have been reading the new catalogs with great interest. I have been looking anxiously for reports in regard to the new fruits, more especially the Strawberry-raspberry, Golden Mayberry, and Logan berry. These three wonderful new fruits have been before the public for several years, and yet almost every catalog continues to repeat the stereotyped extravagant description made by the originator or introducer. The plants now are offered at a very low price—say 10 or 15 cents each. Some of the catalogs assure us that these plants will bear fruit this year; but I have not yet found one where the proprietor says he has grown the fruit on his own ground, and that the claims for it are true. Now, gentlemen, what is the trouble? If they can be grown so easily, and bear such loads, and even produce some fruit the first year, why can't you tell us something about it from your *own experience?* Are we to infer that the men who make the catalogs never go out into the garden at all? or don't they *have* any garden? I purchased all three of the above when they first came out, and I have been nursing them along ever since; but I have never yet succeeded in getting one of them to as much as blossom, neither have I seen anybody who has succeeded any better than I have. If any of the readers of GLEANINGS have got these plants in fruit, especially this Golden Mayberry, that ripens *ahead* of strawberries, will he please stand up and tell us about it? Just one thing more:

You know what a stir GLEANINGS made three years ago about the new forage plant sacaline. Well, a great part of the catalogs still copy the extravagant claims that were made for this plant—"grows from ten to fourteen feet high by June;" "stems or leaves, green or dry, relished by horses, cattle, or sheep;" "more nutritious than clover, millet, corn, or any other forage plant." Now, all this has been paraded before us in our catalogs for three years. I purchased some of the first plants sent out. I have tried them in our rich plant-beds, and have put them out in the fields; I have tried them on various pieces of rich ground, both wet and dry, and I never yet have succeeded in getting a stalk a yard high, to say nothing about doing it by "June." The plant blossoms, bears seed, and acts as if two or three feet were its normal height. It is worth just as much for stock as the common dock, which it so much resembles.

Now, I was just going to cast some severe reflections on the man who sent it out at 25 cents a plant, and the catalogs that *still* continue to boom it at ever so many dollars a pound for seed; but I think I will wait till somebody who sees this has a chance to assure me that he has succeeded better. It seems to me that our practical working people, gardeners, and fruit-growers should make a vigorous protest against these things. Why, the catalog men are killing themselves, so far as business is concerned, by hanging to these humbugs when our experiment stations have declared for the third season that the claims are false and the plants utterly worthless.

At this season of the year, when all our space under glass is crowded to its utmost, not only is it desirable to have every foot of ground occupied as soon as a crop is removed, but in planting seeds we can do still better. Let us take tomatoes for an example. We plant the seeds in rows four or five inches apart. Now, as soon as the plants get fairly up, make a little furrow between the rows of plants, and put in some more seed. By the time the older ones are ready to be transplanted to another place where there is more room, the second lot will be just coming up. In this way we can have a growing crop all the while on the same ground. At this time of the year we cut a little strip of lettuce every morning for the day's sales. This strip is always cleaned off at once, the ground nicely sifted and smoothed over, and seeds or plants usually got right in the same day, and often during the same hour the lettuce was taken off. Where we go to the expense of having sub irrigated beds, with heat underneath, it is all the *more* important that every foot of ground, as I have said, should have a growing crop on it all the while. When it gets warm enough so we can plant stuff in beds without heat, then it is not so very important; but still it is an excellent idea, after one goes to the expense of having beds made, and providing sash, to keep both beds and sash earning some money *every day in the week.*

THE CRANDALL CURRANT; SOMETHING IN ITS FAVOR.

Friend Root:—In the GLEANINGS of Dec. 1, Mr. Anderson, in speaking of the frauds in small fruits, classes the Crandall currant among them. Now, I have seen this currant fruiting for some years, and I do think it has a place among our small fruits In the first place, it is not the black current (*Ribes nigrum*), as Mr. Anderson says, but a fruiting form of the yellow or flowering currant (*Ribes aureum*). The flowering current is a well-known old-fashioned shrub which is planted quite largely for its beauty, blossoming very early in the spring, with yellow, pendulous blossoms, very handsome and fragrant. It is quite a honey-producer too; but the bumblebee seems to monopolize it. The corolla is very long, and the flower very much unlike the black and red currant *Indica*. The gooseberry flower is much more like the red and black currant. I succeeded once in crossing the gooseberry and black currant, but could do nothing with the yellow and black currant. I always thought if I had a place of my own I would plant a few of the Crandall currants for their beauty when in flower, and then for the fruit, which is very good for pies, jellies, etc., and it hangs on the bushes quite a while after ripening, and does not ripen up all at once; so the fruit is in season for a month or so.

Prof. Bailey, in Bulletin 15 of the Cornell Station, says of it: "It represents a new type of small fruits, which, when farther selected and improved, will become a staple."

This currant was introduced in 1888 by Frank Ford, of Ravenna, O. It has no doubt been overpraised by word and picture in the catalog of those dealers who make a business of doing such things; but its good qualities will give it a place among our small fruits, for I certainly believe it deserves one,

Columbus, O., Jan. 18. E. C. GREEN.

Friend G., I am very glad of what you say. When the Crandall currant first came out I paid a big price for a single bush. It is now higher than I can reach, but it has never given us a handful of fruit; and, in fact, it looks almost exactly like a bush of yellow flowering currant in our garden, purchased some years ago of Storrs & Harrison. The fruit of the two is exactly alike, only that of the Crandall is considerably larger. The Crandall has our very richest market ground, and it is a perfect mass of bloom every spring; but there is only a currant here and there, and very few ever reach maturity. We have seen half a dozen berries, perhaps nearly the size of a Concord grape. If any of our readers have a bush or bushes of the Crandall bearing crops of fruit, I should be very glad indeed to hear from them. A great many others have reported an experience similar to my own. It has been suggested that some of the plants are non-bearing, so that one needs half a dozen or more in a group to get fruit.

THE FUEL VALUE OF CORN.

The Nebraska Experiment Station has been making some experiments in regard to this matter; and, as nearly as I can understand, the result is something like this: When you are offered 12 cts. a bushel for unshelled corn, counting 70 lbs to the bushel, and coal is worth $6 50 a ton, you can afford to burn the corn instead of buying the coal. The estimate of 1 lb. of coal is that it is equal to 2 lbs. of corn; or, to speak exactly, 1.9 lbs. Even if this be true, it seems almost wicked to burn the corn, especially while millions are starving over on the other side of the world. Just now it looks as if we wanted cheaper methods of transportation as well as more of the missionary spirit to go with it.

CRIMSON CLOVER.

At this date, Mar. 15, our crimson clover is a "thing of beauty" and a "joy" to at least *one* individual. I am glad to say that there are acres of it where we dug our potatoes that are a perfect mat of green. Not a leaf has been injured, and the clover has made a considerable growth since the first of December. There is no question about it, it has grown wonderfully during the months of December, January, and February. Of course, we are not *entirely* through the winter yet; but from what experience I have had with the plant, I can not for a moment believe that this thick heavy mat is going to be thrown out by the frost. The stand is just about the same on our creek-bottom land, on some that is a little higher, and clear up on the hillside by the windmill. I am a little surprised that it should winter with us season after season, when so many other parts of Ohio report failure. Of course, our land is very rich. The seed was put in after digging a crop of 375 bushels of potatoes to the acre. The last was sown about the 15th of August, but it looks just about as well at present writing as that put in a month sooner.

Health Notes.

WATER CLOSETS; DRY-EARTH CLOSETS, ETC.; SOME GOOD SUGGESTIONS FOR OUT-BUILDINGS FOR RURAL HOMES.

Mr. Root:—I was greatly pleased with what you say in regard to closets, in Health Notes, page 868, Dec. 1; and while the water-closet you mention is all right, and perhaps the very best kind that is used at the present time (and I would strongly urge all who can afford it to use no other kind), there are many persons, especially in rural districts, who can not afford to have a windmill and tank; and the closet you mention is of no use whatever without water. To this class of persons I should like to describe my plan of closet, as used by myself and family.

I think it is fully conceded, that, next to the water-closet proper, the dry-earth system is best; and for rural districts or villages, if properly built and rightly used, they are about all that is required. My house, of course, faces the road. In the rear of the house proper is the kitchen, and in the rear of this is the summer kitchen; immediately in rear of the summer kitchen is a wood or coal shed, and just back of and adjoining that is the closet, a vacant space of about 20 feet, and then comes the barn. You will see by this that the closet is far enough away from the house, yet we don't have to go outside at all to get to it. The closet is boarded and battened up tight, so that not a single crack is left for the least bit of snow or rain to beat in. There is a small window at one end to admit light. A ventilator runs from the under side of the top of the seat up through the roof. As the seat has accommodations for two, a couple of large galvanized pails are made to stand under the seat. I formerly used a drawer in here; but since reading Mr. T. B. Terry's explanations of his closet, in "Our Farming," I have used the pails, which I find to be far better. Not allowing any of the liquid to soak in as did the boards in the drawer, they can be kept much sweeter. Of course, they have to be emptied oftener; but having the stable so near the closet, it is a very easy job to raise the top of the seat, which is on hinges, and lift out the pails, and empty them into the manure-pile at the stable. It is then drawn away with the manure to the fields.

The most comfortable part about our closet is, we have the whole of the seat covered with a nice piece of brussels carpet, and I can tell you it is almost a pleasure to go there at any time of the year. A bin at one end holds the absorbent; and after trying all the absorbents I have heard of, such as dry earth, road dust, ashes, lime, etc , I have not found any thing so good as *dry sawdust*. It is clean to handle, absorbs all the liquid, and keeps down the smell better than any thing else I have used. In fact, there is hardly any smell at all when it is used liberally.

Having occasion to visit quite a little through the country, I have been amazed at the large number of places where there is scarcely any attention paid to the comfort of such places. In fact, in many places where I have been there has been no closet at all; and at others, the places they did have were veritable death-traps, with cracks open and doors off their hinges, and snow drifted all over every thing, and the owners wonder how it is they catch cold so often. I tell you, I am nearly always glad when I return home from one of those trips, where I can enjoy the comforts provided by a little forethought in laying out buildings and surroundings so as to be handy as well as comfortable; and why can not farmers and bee-keepers have such places when they cost so little compared with doctors' bills and other "ills"?

Of course, every one can not have these places fixed just like the one described above; but, dear reader, can you not improve considerably on the surroundings you now have? I should like to go on and tell you how, in my eighteen years of married life, I have, through sanitary measures, been able to live and enjoy life with an expenditure of less than fifty dollars for doctors' bills or medicine for myself and family. But this is not bee literature, and perhaps yourself and readers would not enjoy it as much as I do. JOHN MYERS.

Stratford, Ont., Can.

My good friend, before I got to the end of your excellent article I made up my mind that you lived away up north somewhere; but when I got through I smiled just a little to find that you are really a Canadian. I do not know why it is, but it has sometimes seemed to me as though the further one goes south the less attention is paid to this matter of tasty and attractive as well as convenient closets. When you get down in Florida—yes, and out in Arizona—some very stylish and modern hotels have their closets away off somewhere in the back yard, and not at all in keeping with the other appointments of the hotel.

You have suggested a very simple way of getting rid of the contents of the galvanized bucket or pail. Whenever it has been suggested that these should be emptied on the garden I have always felt as though it was not quite the thing. Neither the average hired man nor anybody else fancies the job; and, besides, unless the contents are immediately plowed or spaded under, it is a very unsightly feature around the home. In winter time almost the only place is, as it seems to me, the manure-heap, and it is but little work to incorporate it thoroughly with the stable manure. But not everybody has a stable. In my little book, "What to Do," I suggested having an all-metal wheelbarrow. Have the closet so made that the wheelbarrow may be wheeled in from the back side, so as to stand directly under the seat. Such a wheelbarrow can be made to hold the accumulations of a month or more; and once a month somebody can take a spade and spade it under out of sight in the garden; but when the garden is frozen up, what then? Will some reader of GLEANINGS help us out? I like the metal-wheelbarrow arrangement, because one need not touch any part of it except the projecting handles.

Once more, our good friend from Canada has given us the very best absorbent, in my opinion. Before we had the water-closet we now have, we used ashes or road dust. Mrs. Root objected to both, because, whenever you throw down a shovelful, unless you are exceedingly careful a cloud of dust rises up; and unless the seat is carefully dusted off, your good clothes will get a dusting, to say nothing of that nice new brussels carpet friend M. speaks about. Well, now, the dry sawdust does not rise in a cloud like road dust or ashes. If possible, use hard-wood sawdust, for it is much better for the garden. The very small quantity needed, however, would not be very objectionable, even if it were pine. There is another objection to wood ashes: They quickly liberate ammonia from stable manure or any other kind; and along with the ammonia we have certain odors that are not altogether pleasant. Sifted coal ashes do very well; but with these we have the objectionable cloud of dust unless the one who handles them is very skillful and careful. I am glad to see so much interest in regard to this matter; for my suggestions referred to in the above article have brought out many communications, and several requests for more light on the same subject.

Humbugs and Swindles.

ELECTRICAL HUMBUGS.

I have not "let up" on Electropoise and similar quacks because they have been driven from the field, but because I concluded I had done my part in warning the public. Electropoise still continues to be advertised in a good many magazines, and especially by periodicals professing to be *religious*. Let them go on, and let God be judge as to whether such things are consistent with the Christian profession. My attention has just been called to the matter by a clipping sent me by Dr. Geo. E. Hailes, the man who has the American Tongan beans. Here is the clipping:

> The English government has undertaken to check the manufacture and sale of electric belts, brushes, pads, etc., on the ground that they are sold on false pretenses, and warranted to cure diseases over which they have no influence.

That is the talk, friends. Let the government take hold of it. Our expert chemists and intelligent physicians can very easily decide (by experiment if need be) whether these traps have any effect or not on the diseases of the human family. It is an easy matter to decide whether there is any electricity whatever about the greater part of them; and I think it may be settled quite conclusively that they have no effect whatever on the patient, except through the agency of the imagination.

On page 171 of our last issue I spoke about sending for instructions for making a homemade windmill. I sent my stamps to Francis Casey, St. Louis, and in the instructions we read as follows: "The castings are worth $4. Any one can get the castings by sending to the Mound City Dishwasher Co., St. Louis." In *Agricultural Advertising* for February we find the following:

> The Newspaper Collection Agency of this city reports that their office receives claims against them at the rate of from one to six a day, ranging in amounts from $5 to $50, and in total to several thousand dollars. No efforts on the part of the Collection agency can get a settlement from the Globe people.
>
> The advertising that they are sending out is for goods owned by the Globe people, and is placed in such names as "Mound City Dishwasher," U. S. Fruit Co., J. F. Casey & Co., and Miss A. M. Fritz. On inquiry at the addresses given, it was found that no such firms existed, but that the Globe people got mail there in those names.

Permit me to repeat, that all this class of communications to newspapers, telling how somebody made great profits by selling a dishwasher, churn, or some similar thing, and that wind up by a pretense of wanting to benefit their "brother farmers" or hard-working sisters, are probably frauds. They try to get these communications inserted among regular reports from farming people or their wives. Where the editor of the newspaper has little or no conscience he will put it in the general reading-matter if he gets paid for it. Sometimes he puts it in *without* getting pay for it, as you will see in the above. But even if the editor insists that it shall go in the regular advertising department, and under the head of advertisements, he is, in my opinion, more or less a party to fraud and deceit; and, worst of all, he is helping to defraud the very people who are obliged to sell their corn, oats, and other produce at such ruinously low prices. It is not only wrong and unchristianlike, but the papers that help to push this kind of fraud, and try to shirk the responsibility, will find, sooner or later, that "whatsoever a man soweth, that shall he also reap." They will find that there is a surplus of some things in this world of ours besides corn and oats, and there is just now getting to be a surplus of periodicals. The editor who is not careful, not only of his reading-columns, but of his advertising department as well, will find a lack of readers, and a lack of *dollars* to keep his paper going. Great is truth, and will prevail; and our farming people are fast learning to hold the editor of their family paper responsible for the advertisements he sends into their homes. Any editor can with little trouble ascertain whether his advertisers are responsible men or *frauds*.

WHO SHALL BE GREATEST?

On page 129 appears something that I did not see till it was in print — I mean that item as to who has done the most for the cause of apiculture in years past. Once upon a time the followers of our Lord and Savior were disputing among themselves. When he asked them what was the ground of their disagreement they all hung their heads down and said nothing; for the facts of the case were they had been disputing as to who should be greatest. Now, I hope it will never be necessary to have such discussions appear in the columns of any of our bee-journals. Shall we not seek to cultivate that beautiful virtue that "suffereth long, and is kind," "vaunteth not itself," and "seeketh not her own"?

A Dollar Saved

is better than one earned. Read my 37th annual catalog, and don't send out West for goods you can buy cheaper here at home.

I have added 2400 feet of floor-space to my store-house and shall keep in stock Root's polished one-piece sections. Dovetailed hives, new Weed foundation, etc., in addition to my old line.

Best breeds of bees and queens at bottom prices. Don't buy until you see what you can do with me.

W. W. CARY, Colrain, Mass.

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Our Prices are Worth Looking at!

IN THE

New Champion Chaff Hive Especially.

All other supplies accordingly. Send for catalogue and price list. Address, mentioning GLEANINGS.

R. H. SCHMIDT & CO., Box 187, Sheboygan, Wis.

MUTH'S HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
ROOT'S GOODS AT ROOT'S PRICES,

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. **"Practical Hints"** will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Early Queens
By Return Mail.

Best tested Italians, $1.00 each. Queens are vigorous, healthy, and prolific. The workers are unsurpassed as honey-gatherers. Send for price list.

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The Cultivator,

Published semi-monthly at Omaha, Nebraska, is the leading authority on fruit grown in Nebraska, and on general agriculture in the West. Send for sample copy and free strawberry-plant offer. Address

The Cultivator, Omaha, Neb.

Sweet Potatoes.

½ pk. G. C. Prolific, ½ pk. G. Grant, 3 pks. Yellow Jerseys, all for ONE DOLLAR. Here is an opportunity to try the *new vineless* varieties at a small cost.
J. Q. MULFORD, Lebanon, Ohio.

1500 Bbls. Sweet=potato Seed.

Yellow Jersey, Carolina, and Nansemond, selected size, $2.50 per barrel; 2d size, $1.75 per Bbl.

Red Jersey and R. Nansemond,	2.50	"
Red Bermuda and Red Spanish,	2 75	"
South. Queen and Bahama White,	2 75	"
Vineless or Gold Coin Prolific,	4 00	"

Discount of 25c per bbl. on 5 bbl. lots.
Send for free circulars. Address

L. H. MAHAN, Box 143.
Terre Haute, Ind.

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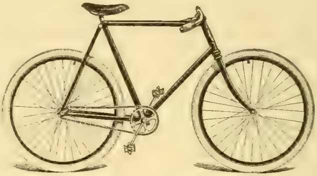

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Every piece and part of the Cleveland Bicycle is made in our own factories by the best of skilled workmen, under most rigid inspection. The result is a Bicycle embodying, in a marked degree, features of safety, speed, and durability.

THERE'S HONEST VALUE IN IT.

We want the patronage of intelligent and discriminating buyers. 1897 catalog mailed free for the asking.

H. A. LOZIER & CO.,
Cleveland, Ohio,

Send 4 cents postage for our booklet, "Shakespeare and the Bicycle." Twelve illustrations in colors by F. Opper, of "Puck."

SYRACUSE
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and protects the scrotum, and should be worn in every case where there is any drooping of the scrotum. It is especially recommended to wheelmen, equestrians, base-ball, foot-ball, and lawn-tennis players, athletes, men doing heavy work, much walking or standing, etc. Ask your physician's advice about wearing a Suspensory—perhaps it will relieve your backache. Our $1.00 grade is very popular, and your dealer, or we, will sell you one and refund money if not perfectly satisfactory. For sale by all druggists and dealers in athletic goods. Send for price list. **A. J. WELLS MFG. CO.,**
250 Tallman Street, Syracuse, N. Y.

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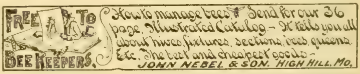

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How to manage bees. Send for our 36 page, Illustrated Catalog.— It tells you all about hives, fixtures, sections, bees, queens. Etc. The best and cheapest goods—
JOHN NEBEL & SON. HIGH HILL, MO.

EARLY QUEENS from good stock (one yard averaged 420 lbs in '94) Have kept bees since '74; sold **thousands** of queens the past six years. **Price $1.00, March and April.** Free catalog.
J. B. CASE, Port Orange, Fla.

COLUMBIAN RASPBERRY, $2.50 per doz; currant, gooseberry, grapevines, $1.00 per doz., prepaid; chestnut and English walnut, 25c each, prepaid; Pearl gooseberry, 50c each.
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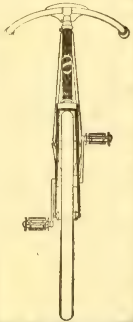

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Greatest Bicycle Factory in the World. More than 17 Acres of Floor Space.

Branch House or dealer in almost every city and town. If Columbias are not properly represented in your vicinity, let us know.

B. Hendrickson, Agent.

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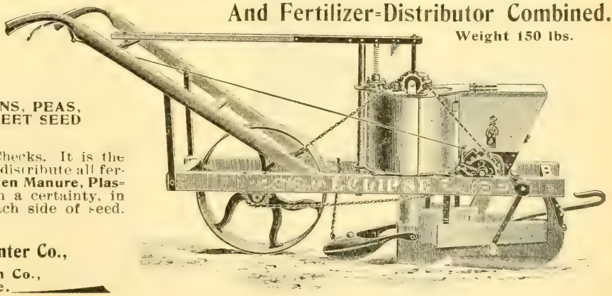
And Fertilizer-Distributor Combined.

Weight 150 lbs.



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CORN, BEANS, PEAS, and BEET SEED

in Hills, Drills, and Checks. It is the only planter that will distribute all fertilizers, **Wet or Dry, Hen Manure, Plaster, Ashes, Etc.,** with a certainty, in different amounts, each side of seed. Send for circulars.

Eclipse Corn-Planter Co.,

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HENS and eggs sell for cash and if farmers would only learn how to produce them they would beat anything on the farm. THE POULTRY **BEAT** KEEPER. Box 63 PARKESBURG, PA. only 50 cents per year, will show you how the hens may beat the cows. Send for FREE sample copy. **COWS**

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Our New 1897 Illustrated Live-stock and Poultry-supply Catalogue

is "up to date." Many new kinks in poultry culture are suggested and illustrated and no LIVE "chickener" should fail to see it. Has BEE FIXINGS too.

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ONE MAN WITH THE **UNION COMBINATION SAW** Can do the work of four men using hand tools in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging up, Jointing Stuff, Etc. Full Line of Foot and Hand Power Machinery. *Sold on Trial. Catalog Free.* 1-24ei

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An Honest Machine, Honestly Built, Sold Under a Positive Guarantee.

New Double Regulator; Model Egg Tray

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It's a pretty book of 68 pages, finely illustrated; worth dollars to every poultryman. A 2c stamp gets it.

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All about them in our catalogue.
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Simple, Perfect, Self-Regulating. Thousands in successful operation. **Lowest priced first-class Hatcher made.**

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CATCHES ROADMASTERS

Last spring several farmers on the line of a big railroad rebelled against barbed wire, and demanded board fences. They compromised on the **Page,** first the company had used. Our man lately called on the Roadmaster, who wanted him to "see those farmers, who would hug and kiss you, and I've got to have 25 miles on my division."

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

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ONLY 15 CENTS.

New Cardinal Beet. -Most desirable in shape and color; very early; cooks dark red.
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One large packet of each of the above (six varieties in all) sent postpaid, for only 15 cents.

FREE. With every remittance of 15 cents for the above collection, I will mail (if requested) without additional cost, my **New Seed, Plant and Bulb Catalogue,** the gem book of the year, which contains everything good, old or new, at right prices. You need it, no matter if you purchase 10 cents worth or $10.00 worth of seeds and plants. Address

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SPECIAL OFFER Made to secure 500,000 new customers. **GEM COLLECTION**

6 PKGS. Choice Seeds sure to grow and blossom, postpaid for **10 CTS.**

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A. B. Webb, Philadelphia, Pa., writes: "The collection of seeds grew and blossomed beautifully."

WRITE TO-DAY; MENTION THIS PAPER and receive New, Instructive and Beautiful Seed and Plant Book.

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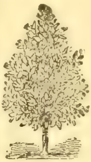

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Red, White, Pink, Yellow and Blush

FOR 10cts

ALL WILL BLOOM THIS SUMMER.

Send 10 cents for the above Five colors of Roses. I want to show you samples of the Roses I grow, hence this offer.

8 of the loveliest fragrant everblooming Roses,	25cts
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FREE A package of the **Earliest Tomato in the World** will be sent to those who, in applying for our Catalogue, will write the words GOOD SEEDS and mention the paper in which they saw this advertisement. ☞ Write NOW as this offer will not appear again.

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at Fair Prices. We aim to supply the **Best Seeds that Grow,** at **Prices** in line with **other Farm Products.**

Every Farmer should have **Our Catalogue,** as we pay more attention to **Improved Farm Seeds** (Northern Grown) than any other seed house in America. Read about the **Lincoln Oat,** introduced by us; **817 bushels** were grown from **seven bushels** of seed. **Our price only 50 cents a bushel** in 20 bushel lots. Get seed from the originators and secure **genuine stock.**

Every Gardener should have **Our Catalogue.** It contains a select list of the very best vegetable seeds, **carefully grown** and **tested. Quality high. Prices low.**

Every Lady who grows **Flowers** should have **Our Catalogue.** Our **Imperial Mixtures of Sweet Peas, Pansies, etc., cannot be surpassed. OUR BOOK** on **GRASSES, CLOVERS, FORAGE** and **FODDER CROPS,** by Prof. **THOMAS SHAW, given away** as a premium. **Catalogue Free,** send for it **NOW,** as this offer will not appear again.

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WITH BASWOOD. PROTECT THEM WITH EVERGRENS.

100, 2 to 5 feet, **$10. 100 Baswood Seedlings, $1.** Delivered free. Other sizes just as cheap. **50 $1.00 Bargains** by mail. Millions to select from. Also **Fruit Trees, Small Fruits, Vines, etc. Liberal cash** commissions for **clubs. Illustrated catalogue free.** Good local Salesmen wanted. Address

D. HILL, Evergreen Specialist, **DUNDEE, ILL.**

Fruit Trees and Small Fruits

LORENTZ PEACH

The best for the least money. Biggest stock, completest assortment. Small fruits, fruit trees, roses, vines, shrubs—for the largest growers and the smallest. Crates and baskets. Illustrated descriptive and price catalog free upon request.
REID'S NURSERIES, BRIDGEPORT, OHIO.

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Tells the plain truth about
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Hundreds of illustrations and remarkable **Novelties,** painted from nature. Known as **"The Leading American Seed Catalogue."** ☞ **Mailed FREE to all.**

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Send this Coupon and 25 cts. for
TEXAS FARMER (Dallas) ONE YEAR.
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Are You Going to Buy

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If so, You Want the Best.

This is the only quality we offer. Our prices are right, and our '97 catalog describing them, and the management of bees, is yours for the asking.

We carry a large stock, and can ship promptly. Freight is a big consideration often amounting to 20 per cent of the value of goods. Let us quote you prices on what you need, delivered at your station,

Freight Paid.

They will cost but a trifle more than others charge at the factory. Our aim is to please.

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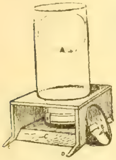
105 Park Pl., N. Y. City.

Don't Neglect Your Bees.

Bee-keeping may be made uniformly successful by judicious feeding. It is just as important with bees as with other stock.



Success in feeding depends very much on the feeder used. When you have tried the

Boardman Atmospheric Entrance-feeder

you will be convinced of this.

For descriptive circulars and price list, address

H. R. BOARDMAN, East Townsend, Ohio.

Just Arrived!

My first carload of goods from **The A. I. Root Co.** has arrived, and I am in shape to fill all orders promptly at their catalog prices. Send for my 36 page catalog; also send a list of what goods you will need, and I will make you special prices on early orders.

GEO. E. HILTON,
Fremont, Mich.

"WATCH POUDER'S AD"

SEE THAT WINK?
BEE SUPPLIES.

Root's Goods at Root's Prices.

Pouder's Honey Jars and every thing used by bee-keepers. Low freight rates; prompt service. Catalogue free.

WALTER S. POUDER,
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Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. **Honest Goods at Close Honest Prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

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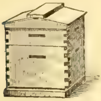


and all kinds of bee-keepers' supplies. Send for illustrated catalog.

Deans & Miner,
Ronda, - North Carolina.

In writing advertisers please mention this paper.

It is here.

The year 1897 is here, and we are happy to inform our friends and customers that we are now better prepared than ever before to fill your orders for queens and bees. We have the largest stock ever operated by us, and we mean to be ready with plenty of bees and queens to fill all orders without delay that are sent to us.

Bees by the pound, $1.00; ten or more pounds, 90c each. Untested queens for 1897, $1.00 each in February, March, April, and May; $5.00 for six, or $9.00 per dozen. For larger amounts write for prices. Have your orders booked for your early queens. Safe arrival guaranteed.

Root's goods, Dadant's foundation, and Bingham smokers. A steam bee-hive factory, and all kinds of bee supplies.

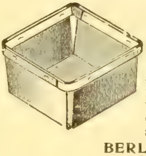
The ***Southland Queen***, the only bee-paper in the South, monthly, $1.00 per year.

Send for catalog, which is almost a complete book on Southern bee-keeping, giving queen-rearing in full, all free for the asking. If you want full information about every thing we have, and the bee-book, don't fail to ask for our 1897 catalog.

The Jennie Atchley Co.,
Beeville, Bee Co., Texas.

Fruit Packages of all Kinds,

Also



Bee-keepers' Supplies.

We allow a **liberal discount** on early orders. **Why** not send for your supplies now to save the discount and avoid the rush of the busy season? Catalogue and price list free. Address

BERLIN FRUIT-BOX CO.,
Berlin Heights, Erie Co., Ohio.

Look Here!

Do you need queens? the purest and best. If so, we are prepared by return mail to ship the 3 band and golden Italians, and silver gray Carniolans, untested, warranted purely mated, for 50c; tested, 75c; breeders, $2.25.

JUDGE E. Y. TERRAL & CO., Cameron, Texas.

One Cent

Invested in a postal card will get my large catalogue of all Root's goods. Can save you money.

M. H. HUNT,
Bell Branch, Mich.

For Sale.

At only $3.00 per hive, fine Italian bees with good queens.

JNO. A. THORNTON.
LIMA, ILLINOIS.

Bees for Sale.

In 8-frame Dovetailed hives, queens from imported mothers. Price $4.00 to $5.00 per colony.

EDW. SMITH, Carpenter, Ill.

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Our Agricultural, Horticultural, and Gardening Exchanges.

	Price with GLEANINGS.
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THE A. I. ROOT CO., Medina, Ohio.

Wants and Exchange Department.

Notices will be inserted under this head at one-half our usual rate. Advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for csah or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 c. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—A young man of 23 years wants to take care of bees this coming season for wages or on shares, in this or any adjoining State, or California. Have had successful experience. Ref. given. Write at once. Address R T Stinnett, Central Business College, Denver, Col.

WANTED.—To exchange nice comb honey for thin foundation. L. Werner, Edwardsville, Ill.

WANTED.—To exchange for bees or offers, "registered" Jersey cow, butcher tools, foundation-mill, bone-mill, double buggy, new cutter, and Light Brahma chickens. Address
Elias Fox, Hillsboro, Wis.

WANTED.—To exchange Italian queens, bred from imported mothers, for plants, seeds, pet stock, or Cowan extractor. What have you to offer?
J. H. Garrison, 1011 N. 23d St., St. Louis, Mo.

WANTED.—To exchange Belgian hares, homing pigeons, White Leghorn eggs or breeding-stock for Italian queens from imported mother, pure-bred geese, ducks, or ducks' eggs, or offers.
Eugene Manning, Jacksonville, N. Y.

WANTED.—To exchange 2000 Ohio and Hopkins raspberry-plants, valued at $6.00 per 1000, for extracted honey or comb foundation.
R. G. Robertson, Marshall, Mo.

WANTED.—To exchange one Root's make section-machine (in fine order) for band-saw or offers.
The Geo. Rall Mfg. Co., Galesville, Wis.

WANTED—To exchange Pastel, Water Color and hand-made Crayon Portraits for apiarian supplies. John S. Semmens, 2724 Woodland ave., Kansas City, Mo.

WANTED—To exchange for any thing useful, 40 colonies bees; also 100 Simplicity supers with wide frames. A. Y. Baldwin, De Kalb, Ill.

WANTED—To exchange for bees in Fla. or Ga., one fine stereopticon, 120 plain, 31 colored views, etc. Parties located elsewhere must buy.
G. F. Tucker, 226 S. Ash St., Nevada, Mo.

WANTED—To exchange eggs from B. Rocks, W. and Buff Leghorns, S. S. and Buff P. Bantams, for wax or queens. J. Hallenbeck, Altamont, N. Y.

WANTED—To exchange young laying queens for bee-hive machinery or full colonies of bees; will pay cash for bees if preferred.
H. G. Quirin, Bellevue, O.

WANTED—To exchange McDowel Garment Drafting Machine complete, with instructions, for Guitar, Mandolin, or honey.
Virginia Lenehan, Decherd, Tenn.

WANTED—To exchange a brand-new set of Encyclopedia Britannica, cost $60, also a brand-new Webster's Encyclopedic Dictionary, latest edition, bound in sheep, cost $10, for strong hives of bees, hybrids preferred. Fred Holtke, care of F. Bendt, cor. Sixth and Orange sts., Newark, N. J

WANTED—To exchange incubator, hives, supplies, rubber printing-outfits, or cash. Want honey, wax, or fdn.
O. H. Hyatt, Shenandoah, Page Co, Iowa.

WANTED.—To exchange 60-lb. cans in good order, boxes, valued at 25 cts. each, delivered, for comb or extracted honey, of this or next season's crop, at the market price. B. Walker, Evart, Mich.

WANTED—To exchange full colonies or nuclei of bees for gun or W. Wyandotte pullets.
I. J. Stringham, 105 Park Place, New York City.

WANTED—To exchange standard varieties strawberry plants and Turner raspberry-sets for any thing useful. H. R. Gebhart, Miamisburg, O

WANTED—To exchange turnip seed or bees for mink, muskrat, and house-cat furs.
C. G. Marsh, Belden, Broome Co., N. Y.

WANTED—By young man, 10 years' experience, position as apiarist, or apiary on shares
Address Box 24, Altamont, New York.

WANTED.—A young American man would like a position in some western apiary. Had 2 years' experience. Would prefer a good chance to learn rather than first-class wages. Can give good recommend. eoi A. E. Ford, Fitchburg, Mass.

UNTESTED QUEENS, leather-colored Italian, in April, 50 cents each. If you want cheap bees, queens, and sweet clover, send for my circulars and price list Safe arrival and satisfaction guaranteed.
Address W. J. Forehand, Fort Deposit, Ala.

WANTED.—Ten nuclei; also Craig Seedling potatoes at Root's prices for sale. Address
P. M. Byerly, Farley, Dubuque Co., Iowa.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

OUR NEW SEED CATALOG FOR 1897.

This is finally ready to send out. It is twice the size of any of its predecessors, and embraces spraying-outfits, directions for using fungicides and insecticides on all sorts of plants and fruits; tools for gardening, etc. Mailed free to any address on application.

BUNCH YAMS AND VINELESS SWEET POTATOES.

Either kind, 20c per lb. by mail (or 10c per lb. if sent by express or freight with other goods); 3 lbs., by mail, 50c; ½ pk., 40c; pk., 60c; bu., $2 00; bbl., $4.50. The vineless sweet potato is better known in some localities as the General Grant.

FREEMAN POTATOES FOR TABLE USE.

Mrs. Root has been making careful tests of all the new potatoes offered for sale, and there is no one of them equal to the Freeman—not even the old Snowflake, that has been given the highest place of all. If you have never tried the Freeman you should have at least a few from our stock grown by T. B Terry. Choice potatoes, carefully selected for seed, are only $1.50 per barrel; seconds, half price. The latter are just beautiful for a baking potato.

PREMIUM POTATOES TO OLD SUBSCRIBERS WHO RENEW.

To every person who sends us $1 for Gleanings, past, present, or future, where no other premium is called for, we will allow 1 lb. of Thoroughbreds, or the same value in any of the other kinds in the list. But the recipient must pay all postage at the rate of 10 cts. per lb. for stamps and packing. Please notice in Kind Words in this issue the quantity of valuable potatoes that some of our readers secured last year from their 1 lb. of premium potatoes. Of course, you can have your premium potatoes sent by express or freight with other goods, and then there will be nothing to pay for postage.

A BARREL OF POTATOES TO EVERY ONE WHO SENDS US A NEW SUBSCRIPTION.

Every present subscriber to Gleanings who will send us a new name, inclosing $1 for the same, may have as a premium a barrel of New Queen seconds, worth 63c We do not make this offer because the New Queen is in any way inferior, but because we have a very large lot of them; and as it is an early potato it ought to be planted pretty soon. Of course, the one to whom the potatoes are sent must pay freight. If it is too much trouble for you to get a new name, make somebody a present of Gleanings for one year; but please remember that this exceedingly liberal offer is made solely that GLEANINGS may be introduced into some family or neighborhood where it has not gone before. We can not send you the potatoes if you simply have GLEANINGS sent to some other member of your own family. It should go to some postoffice where it is not already taken. If you want some other variety of potatoes than the New Queen, each new name sent us will entitle you to a dollar's worth of Thoroughbreds or 50 cents' worth of any of the other varieties in the list. For list of other varieties, see our issue of Feb. 15, page 134.

OUTDOOR GARDENING FOR MARCH 15.

Just as soon as you can get a piece of ground so it will work either with the spading-fork or plow, get in some Alaska peas and spinach. If you have room to put in some American Wonders beside the Alaskas they will come in about a week later. Don't forget spinach. It is as hardy as the peas, and I have never yet seen any market overstocked with good spinach. To produce a nice article, however, the ground must be exceedingly rich. In fact, you can not make it too rich. Spinach is now quoted in the city markets at about 75 cents a bushel. We usually get as much for it as for lettuce (say 15c per lb.) early in the spring; but to get this big price it must be started under glass. You want the ground rich enough so the leaves will be thick and heavy, and of that dark rich color which indicates extra good soil. We prefer the Bloomsdale Extra Curled, and can make the following low prices on the seed: 1 lb., 15 cts.; 5 lbs., 60 cts.; 10 pounds or over, 10 cts. per lb. Our own ground is just plowed.

GOLDEN SELF-BLANCHING CELERY.

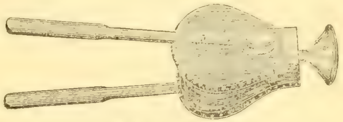
Ever since this came out it has been a favorite and staple variety, and there has been considerable said about getting a strain of seed equal to that first sent out by the originator. We have taken considerable pains in the matter, and have obtained a limited quantity of seed from Vilmorin, Andrieux & Co., the originators of the variety. Now, we can not tell whether this is greatly or any superior to the best American grown; but we would naturally suppose that the originator would have the very best strain in his possession. We offer the best American grown for 20 cts. per ounce, or $2.00 per lb. The seed mentioned above, imported direct from France, can not be sold for less than 30 cts. per ounce or $3.00 per lb. Of course, we furnish five-cent packages of each kind, but there are not so many seeds in the high-priced strain as in the other. We are making careful tests of both kinds, and will report in due time. If you order the high-priced, please state that you want the "Vilmorin" strain.

VEGETABLE-PLANTS READY MARCH 15.

We have a very nice stock of palmetto asparagus roots, one and two years old; plenty of nice horseradish roots; Wakefield cabbage-plants once and twice transplanted. We have no cold-frame cabbage-plants, but we offer the twice transplanted at the same price. They are out in cold-frames, and I think they are fully equal to cold-frame plants. We also have a nice lot of cauliflower-plants and Grand Rapids lettuce-plants. We have no onion-plants ready to send out except winter, or Egyptian. These have been outdoors all winter without any protection, and can be planted now anywhere where the ground is not frozen, and will grow an abundance of onions for next spring. Price 15c per 100; $1.00 per 1000; $7.50 per 10 000. We can also ship promptly all the various kinds of strawberries we advertise. We have also a very nice lot of Victoria rhubarb roots at 10 cts. each; 50c for 10; $3.50 per 100. Small roots can be sent by mail postpaid at the above prices. Large ones should go by freight or express. The rhubarb is very hardy, and if they should be a month on the way it would not hurt them any.

THE AMERICAN COFFEE-BERRY.

It seems there are several varieties of this new plant. Gregory in his catalog describes four kinds of soja beans. The coffee berry is one of the four, and he gives it a very high recommend for coffee. Breck & Sons also describe it, and give a picture of the plant full of pods, with a coffee pot standing beside it; and, by the way, this coffee-pot picture is exactly the same one used by Cole, of Buckner, Mo.; but we are not sure that Cole's American coffee-berry is the same as Breck's. The coffee-berry recommended by Gregory is dark-colored, and the beans are flatish. Cole's are round, and of a bright cream color. One may be just as good as the other; but ours ripens its crop easily in our locality before frost, and I think it is going to be a very valuable variety of soja bean, let alone its value for coffee. We have bought a larger lot of the same stock we had last season, and can now offer it, besides the five-cent packages as follows: ½ pint, 15c; pint, 25c; quart, 40c. If wanted by mail, add 15c per quart for postage. We hope enough will be raised during the coming year so that the present high prices may no longer exist.



INSECT-EXTERMINATOR.

At this present writing, March 15, we have still another powder-dusting bellows called the Insect Exterminator. This machine, which consists of a long-handled bellows, so made as to get the powder all down on the ground, and away from the operator, promises to distribute Paris green, hellebore, or any other insecticide, almost as well as the Leggett and Hotchkiss machines, while the price is only $1. Of course, we have not given it a practical test in the field; but in experimenting with it on common flour it throws the material in a little dusty cloud, and seems to be proof against clogging or stopping up, which has been the great fault of all the low-priced machines. Sent by mail for 25c extra.

THE TONGAN BEANS.

Our own vines grown in the greenhouse spread and covered a large area, and ripened quite a quantity of the beans, though not enough to test them for cooking purposes. At the time I introduced them a year ago I supposed there were none others like it in America. Since then, Mr. Geo. E. Hailes, box 1147, San Antonio, Texas, has sent me samples of beans that so exactly resemble the Tongan I concluded they could not be a different variety. They are grown in the South solely as an ornamental plant, and are there called "jack beans." Although they may be good for table use, they have never used them there in that way. From what I have seen of them I have no doubt that a single plant will produce *a bushel of beans*, but they would have to be grown in some locality where they would not be killed by frost during winter. I think friend W. S. Hart, of Hawks Park, Fla., has some plants that have wintered over. We can still furnish seeds at 5 cents per packet to those who want to try them. They can be grown here in the North so as to ripen seed before frost if they are started under glass. We have succeeded in doing so without any trouble.

THE BEET-SUGAR INDUSTRY, AND THE KIND OF SEED REQUIRED TO RAISE BEETS.

There is one special strain of beet seed not kept for sale by any seedsman in the United States, so far as I know, but it can be obtained only by importing it from Germany. You can all remember the name without any trouble, for it is "Kleinwanzlebener." We have none in stock, but have made arrangements so that we expect to have it in about ten days or two weeks. We can furnish it for trial in five-cent packages, or 30 or 40 cts. per lb.; we can not tell exactly until we know what the expense of shipping will be. The people at our experiment station, Wooster, O., recommend the Kleinwanzlebener (this is a special strain, and is "stock seed") above all others for the production of sugar—that is, where beets are grown for a sugar-beet factory. The Lane's Imperial sugar beet, which we have sold so many years, is also recommended by our station, and for feeding stock. This we offer at the very low price of 15 cts. per lb.; 5 lbs., 60 cts.; 10 lbs. or more, 10 cts. per lb. By the way, we are told that good beets, suitable for making sugar, can be grown all over Ohio, and probably in adjoining States.

THE UNITED STATES WEATHER BUREAU AT THE PRESENT TIME.

The weather people have been doing some excellent work of late. Since the first of March they have made between 30 and 40 predictions, from 24 to 48 hours in advance, and so far not one single mistake. In some cases the prediction has been somewhat complicated For instance, here is the telegram received at 10 a. m., March 12:

> Generally fair Saturday, preceded by local rain or snow. This afternoon or to-night, cold wave; temperature will fall 20 or 30 degrees by Saturday morning.

Now, all the above took place exactly according to program. In fact, they have been telling the weather beforehand almost as accurately as one could write it down after it had past and gone.

SPECIAL NOTICES FROM BUSINESS MANAGER

BRITISH BEE JOURNAL.

We are receiving every week five extra copies of the *British Bee Journal*, for which we have no names to send it to. We shall be pleased to send these to any of our readers, who care for it, at 75c for the rest of the year 1897, and we will send you what back numbers we have as well.

WHOLESALE LISTS TO DEALERS.

As this number is being mailed we are sending out wholesale lists to dealers in bee-keepers' supplies whose names we have on our list. If you are handling our goods as a dealer, and do not receive one of these lists, write for it. We send it only to legitimate dealers and agents. Others need not apply.

WEED NEW-PROCESS FOUNDATION AND DRAWN FOUNDATION.

We shall be pleased to mail our new sample package of foundation, including a small piece of the new drawn foundation with deep cells, for 5 cents in stamps to cover postage and packing. This package also shows the quality and workmanship of our extra polished sections.

ELECTRICAL WIRE-IMBEDDING OUTFIT.

If you have very much foundation to put on wired frames, it will pay you to use this outfit. The saving in time and the nicety of the work will more than pay the extra cost. It includes a battery of two cells, chemicals, and all the necessary tools. The batteries heat one strand of the wire at a time, so that it sinks into the foundation by simply pressing lightly on the sheet on the reverse side. Directions for use accompany each outfit.

Price of outfit complete, $2.50.

CARLOAD SHIPMENTS.

Since our last report a month ago we have shipped a carload to Wm A. Selser, 10 Vine St , Philadelphia, who has charge of our supplies at that point, and who will, when desired, make shipments from New York City. A carload has gone to Jno. Nebel & Son, High Hill, Mo.; another big car to the Bee-keepers' Exchange at Los Angeles, Cal.; one to Buell Lamberson, Portland, Oregon. Besides we have shipped three carloads across the Atlantic—two for London and one for Glasgow. Orders are booked for four or five more cars which we expect to ship during the next ten days. While we have been a little behind on orders we are catching up, and hope by April 1 to be handling every thing promptly. Don't delay too long in sending in your orders.

MAPLE SUGAR AND SYRUP.

The delicious sweets of the sugar maple are already becoming plentiful in our market and we are able to offer a choice article of this year's make at lower prices than usual. We handled last year over 15 tons of maple sugar, and upward of 1000 gallons of syrup, so we are prepared to supply it in large and small quantities. We also guarantee what we furnish to be absolutely pure maple. Choice first-run syrup, in 1-gallon cans, we offer at 90c per gallon; 5 gallons, $4.25; 10 gallons, $8 00; 20 gallons and upward, 75c per gallon. Good clear syrup, not first run, at 5c per gallon less.

Choice first-grade sugar, 9c per lb.; good second-grade sugar, 8c per lb.; fair third-grade sugar, 7c per lb.; 50-lb. lots ½c per lb. less; barrel lots of 300 lbs., 1c per lb less. At these very low prices we ought to be able to supply large quantities. Your orders will receive prompt attention.

HONEY MARKET.

We have engaged, and offer for sale at very favorable prices, the following lots of comb honey, and shall be pleased to hear from any interested.

In Northwestern Pennsylvania, 400 lbs. of fancy white clover in 12 lb. cases, and in 200-lb. lots at 13c, or the lot at 12½ cts.

We have also three lots in Michigan, consisting of 300 lbs. fancy and No. 1 white, in 12 and 16 lb. cases, which we offer at 12c per lb. for lot.

1200 lbs. amber, which we offer at 10c per lb., and 200 lbs. buckwheat, which we will sell at 8½c per lb. in 200-lb. lots, or 8c for the lot.

Of extracted honey we have in stock a very choice article of clover and basswood in 60-lb. cans, 2 in case, for which we ask 7c per lb.; 2-case lots at 6½c.

We can also supply choice basswood honey, direct from Wisconsin, in 500-lb. barrels, at 5½c per lb. In 1-gallon cans; lots of not less than 10 cans, at 6½c; 50-can lots at 6c, or a ton at 5½c.

4X5 SECTIONS IN THE 8 FRAME SUPER.

Those who wish to try the 4x5 sections in the regular 8 frame super which they have, without making any change in them, can do so in this way: Provide a rim of the same outside dimensions as the super, 13⅞x20, and ¾ inch deep. Attach a strip of tin to the bottom inside edge of each side of this rim. Procure or make 7-to-foot slats, ¼ in. thick, $12\frac{1}{16}$ long, and slotted from end to end, or to within ¼ inch of the end. Wood separators 4⅞ wide, with one long slot on the under edge ⅝ inch deep, completes the outfit. You can put 30 sections, 4x5, into an 8-frame super in this way. If sections 1⅝ wide are used without separators, 33 sections can be placed in a super. We can supply these ¾-inch rims at 3c each; 20c for 10; tin strips 19 in. long at 50c per 100; $12\frac{1}{16}$ 7-to ft. slotted bottom slats, 60c per 100; $4\frac{7}{8}$x$12\frac{1}{16}$ slotted bottom separators, 60c per 100. This makes the outfit needed for a super cost 18c each, $1.50 for 10; sections extra. If you have to buy the supers outright we recommend the regular Danz. equipment.

KIND WORDS FROM OUR CUSTOMERS.

Find inclosed 20c for 100 of the leaflets "Food Value of Honey," by Dr. C. C. Miller. We have baked several batches of honey-jumbles, and find them excellent. **JOHN S. SNEARLY.**

Williamsville, N. Y., Feb. 27.

GOOD REPORTS FROM THE THOROUGHBREDS.

I made 61 pounds of potatoes from the pound of Thoroughbreds that I received for a new subscriber. They had no manure or extra cultivation.

Isom, Maury Co., Tenn. **J. S. WORLEY.**

The 1 lb. of Thoroughbreds yielded 77 lbs. 11 ozs.; the 1 lb. of Craig yielded 23 lbs. 5 ozs. This yield is not large, the conditions not being favorable, but the immense superiority of the Thoroughbred is plainly shown. **A. DAWSON.**

Mohawk, Ont.

The pound of Thoroughbred sent me yielded 92 lbs. **CLAYTON HOLL.**

New Berlin, O., Feb. 22.

I expect to want some potatoes soon. By the way, I raised 100¼ lbs. from one premium pound of Maule's Early Thoroughbred, in our garden, without extra fertilizer. **MRS. M. A. SHEPHERD.**

Barry, Pike Co., Ill., Feb. 27.

I received the pound of Thoroughbred potatoes, and raised 62 lbs. from it. **A. R. TUTHILL.**

Welcome, Minn., Feb. 7.

HOT-BED SASHES, ETC.

I wish to emphasize your method of putting the cold-frame sash together by using paint for the joints. It makes them more solid and durable. I prefer seed of your own raising, as I have had great success with them the past three years.

Alexandria. Ind. **EVAN E. EDWARDS.**

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Honey Column.

CITY MARKETS.

KANSAS CITY.—*Honey.*—No. 1 white, 12@13; fancy amber, 11@12; No. 1 amber, 10@11; fancy dark, 9@10; No. 1 dark, 8@9; white extracted, 5@5½; amber, 4½@5; dark, 4; beeswax, 25.

C. C. CLEMONS & CO.,
March 22. 423 Walnut, Kansas City, Mo.

NEW YORK.— *Honey.*— Fancy white, 11; No. 1 white, 10; fancy amber, 9; No. 1 amber, 8; fancy dark, 6½@7; No. 1 dark, 6; white extracted, 5@5½; amber, 4½@5; dark, 3½@3¾; beeswax, 26@28. There are no new features in the honey market. Demand is fairly good, and stocks are gradually diminishing at unchanged prices. Beeswax quiet at 26@28c, according to quality.

HILDRETH BROS. & SEGELKEN,
March 20. 28 & 30 W. Broadway, New York.

MINNEAPOLIS.—*Honey.*—Fancy white, 13@14; No. 1 white, 10@12; fancy amber, 9@10; No. 1 amber, 8@9; fancy dark, 7@8; No. 1 dark, 6@7; white extracted, 6@7; Western white, 5@6; amber, 5@6; dark, 4@5; beeswax, 22@25. Market unchanged, and quiet for both comb and extracted. Demand for the latter is well supplied.

S. H. HALL & CO.,
March 20. Minneapolis, Minn.

MILWAUKEE.—*Honey.*—Fancy white, 12@13; No. 1 white, 10@11; fancy amber, 8@10; white extracted, 5½@7; amber, 4½@5; dark, 4@4½; beeswax, 26@27. The supply of honey continues very fair and the demand is moderate, and the best quality usually wanted, while the common qualities do not move. Hence the argument is in favor of improved conditions of package and quality of product. All choice will be taken, and the common left. Give us the *best.*

A. V. BISHOP & CO.,
March 19. Milwaukee, Wis.

COLUMBUS.—*Honey.*—Fancy white, 12@12½; No. 1 white, 11; fancy dark, 8½.

THE COLUMBUS COM. & STORAGE CO.
Mar. 23. 409-413 N. High St., Columbus, O.

CINCINNATI.—*Honey.*— No. 1 white, 12@13; No. 1 amber, 10@12; white extracted, 5@6; amber, 4@5; dark, 3½@4; beeswax, 22@25. Demand slow for all kinds of honey, while supply is fair.

CHAS F. MUTH & SON,
March 22. Cincinnati, O.

DETROIT. — *Honey.*— Fancy white, 10@11; No. 1 white, 9@10; fancy amber, 8@9; No. 1 amber, 7@8; fancy dark, 7; white extracted, 5@6; amber, 4@5; dark, 4; beeswax, 24@25. There is little demand for comb honey, and quite a large stock in commission houses.

M. H. HUNT,
March 22. Bell Branch, Mich.

BOSTON. — *Honey.* — Fancy white, 13; No. 1, 11@12; fancy amber, 10; white extracted, 7@8; amber, 6@7; dark, 6; beeswax, 25. Comb honey is selling very slowly, with a full stock on hand. Beeswax in good demand, with a very light supply.

E. E. BLAKE & CO.,
March 20. 57 Chatham St., Boston, Mass.

ALBANY. — *Honey.* — Fancy white, 12@13; No. 1 white, 10@11; fancy dark, 7@8; No. 1 dark, 6@7; white extracted, 5@6; dark, 3½@4. There is a fair demand for both comb and extracted honey, and we are quite confident that we shall be able to close out all desirable stock without much trouble within the next four weeks.

CHAS. MCCULLOCH & CO.,
March 16. Albany, N. Y.

PHILADELPHIA.—*Honey.* — No. 1 white, 8; fancy amber, 7; No. 1 amber, 6; fancy dark, 6; No. 1 dark, 5; white extracted, 5@5½; amber, 4½; beeswax, 26. Season for comb honey about over; dealers do not care to buy on account of warm weather so near. Extracted honey selling slowly; prices very low. Times are much harder here now than they have been all winter, and honey is regarded as a luxury.

WM. A. SELSER,
March 20. No. 10 Vine St., Philadelphia, Pa.

CHICAGO. — *Honey.* — Fancy white, 11@12; No. 1, 10@11; fancy amber, 9; No. 1 amber, 7; fancy dark, 8; No. 1 dark, 7; white extracted, 5@7; amber, 5@6; dark, 4½; beeswax, 25@27. Stocks are working down, but there is no improvement in price. The season for comb honey is drawing to a close. Any one intending to market in the cities should do so now.

R. A. BURNETT & CO.,
March 19. 163 So. Water St., Chicago, Ill.

ST. LOUIS. — *Honey.* — Fancy white, 12½@13; No. 1 white, 11@11½; fancy amber, 10@10½; No. 1 amber, 9; fancy dark, 8; No. 1 dark, 7@8; white extracted, 6½ in cans, 5½ in bbls.; amber, 5½ in cans, 5 in bbls.; dark, 3½ in cans, 4½ in bbls.; beeswax, 23@25. For the past two weeks there has been a better demand for honey, especially on extracted. The prospective tariff on sugar, I think, is mainly the cause, as the demand is from manufacturers.

WESTCOTT COMMISSION CO.,
March 20. 213 Market St., St. Louis, Mo.

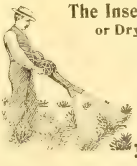
DENVER.—*Honey.*—Fancy white, 11; No. 1 white, 10; fancy amber, 9; white extracted, 6; beeswax, 25. We can not quote better prices than the above for our market, and we will not give a false price to the readers of GLEANINGS.

R. K. & J. C. FRISBEE,
March 24. Denver, Col.

FOR SALE.—A quantity of alfalfa extracted honey in 60-lb. cans at 5½c, f. o. b. here. Sample on application. M. H. HUNT, Bell Branch, Mich.

FOR SALE.—6000 lbs. extracted honey, in new cans and cases, $350.00. Speak quick; who wants it? ELIAS FOX, Hillsboro, Wis.

FOR SALE.—$25.00 for one 500-lb. barrel of A No. 1 linn extracted honey, F. O. B. cars here; or 5½c in packages of 60 lbs. each. J. B. MURRAY, Ada, O.



The Insect-powder Distributor
or Dry-powder Sprayer for 1897.
Pat'd in the U. S. and Can.

A perfect-working machine for applying dry poison upon vines, currants, cotton, tobacco, potatoes, fruit-trees, etc.

Manufactured by
Hotchkiss Bros., Wallingford, Ct.

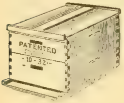
FOR SALE.—Barnes foot-power saw. Perfect in every particular. Have made over 800 hives with it. Five saws; every thing in order; all good as new; all out of bee business—no use for it. First draft for $20.00 takes it, F. O. B. E. D. KEENEY, Arcade, N. Y.

Advanced Bee Culture.

During the earlier years of its publication, the **Bee-Keepers' Review** was devoted to the discussion of special topics. Each number was really a little pamphlet containing the views of the best men upon some special topic. After publishing the **Review** five years, its editor wrote "Advanced Bee Culture," a book of nearly 100 large, double column, well-illustrated pages, which is really a summing-up — the cream, so to speak—of those first five volumes of the **Review.** It begins with the opening of the year, and takes the reader through the whole season, describing the most advanced methods for performing all of the most important operations until the honey is sold and the bees ready for winter. A single idea in the book may be worth dollars to the reader. The price of the book is 50 cts , but, for advertising purposes, for the sake of getting the **Review** into new hands, this book is given absolutely free to any one not now a subscriber who sends $1.00 for the **Review** for 1897.

W. Z. HUTCHINSON, Flint, Mich.

The Danzenbaker Hive



and Honey won Highest Honors at the Fairs, and Pays as Premiums to Purchasers

of 50 hives, $50 for the best 100 Danzenbaker sections.
of 25 hives, $25 for the best 50 Danzenbaker sections.
of 20 hives $20 for the best 40 Danzenbaker sections.
of 10 hives, $10 for the best 20 Danzenbaker sections.
of 5 hives, $5 for the best 10 Danzenbaker sections.

Further particulars regarding these premiums, also special catalog of the Danzenbaker hive and system, furnished free upon application.

FRANCIS DANZENBAKER, Medina, Ohio.
Care of The A. I. Root Co.

Nuclei==Order Now,

of the old reliable queen-breeder, a 2-frame (Hoffman) nucleus and warranted queen (Italian) that we will guarantee will produce a large colony by June, for $2.75.

Direct the Philadelphia branch of

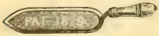
THE A. I. ROOT CO.,
Wm. A. Selser, Mgr. **10 Vine St., Phil., Pa.**

☞ A full line of all bee-supplies.

PRICES OF

Bingham Perfect Bee=smokers and Honey=knives.

Smoke Engine (largest smoker made.)	4-in. stove.	Doz.,	$13.00;	each, by mail,	$1.50
Doctor	3½	"	9 00;	"	1.10
Conqueror	3	"	6.50;	"	1.00
Large	2½	"	5.00;	"	.90
Plain	2	"	4.75;	"	.70
Little Wonder (wt. 10 oz.)	2	"	4.50;	"	.60
Honey-knife		"	6.00;	"	.80



Bingham & Hetherington Uncapping-knife.

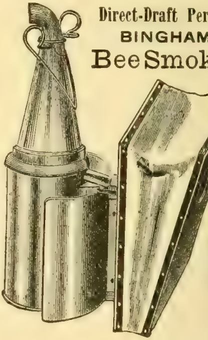
Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer, I write for a circular. I do not think the 4-inch Smoke Engine too large.
Jan. 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.

T. F. BINGHAM, Farwell, Michigan.

Direct-Draft Perfect
BINGHAM
Bee Smoker



PATENTED
1878, 1882 and 1892.

Root's Goods at Root's Factory Prices At Des Moines, Iowa.

Immense stock of the latest 1897 goods now on hand, and more to follow.

Thousands of Hives and Millions of Sections is our record, and other goods in proportion. We are sure to please you if the best goods at bottom prices and good service will do it. Eleventh annual catalog FREE. Address

JOS. NYSEWANDER, Des Moines, Iowa.

160-page Bee-book FREE.

Bee-book Sent Free with American Bee Journal.

Every *new subscriber* sending $1.00 for the *weekly* **American Bee Journal** for one year will receive a copy of Newman's 160-page "Bees and Honey" free. The old **American Bee Journal** is great this year. You ought to have it, even if you do take GLEANINGS. Sample of **Bee Journal** free. Write for it.

GEORGE W. YORK & CO., 118 Michigan St., Chicago, Ill.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
Published by The A. I. Root Co.
$1.00 per Year Medina, Ohio.

Vol. XXV. APR. 1, 1897. No. 7

STRAY STRAWS
FROM DR. C. C. MILLER.

G. C. Greiner, p. 192, thinks it would be better to unite two or three weak colonies and have better work in sections. Right. Now if we could only unite two or three poor seasons!

A. I. Root, p. 213, has "let up" on humbugs because he concludes he has done his part in warning the public. No, you haven't, A. I. Don't "let up" till you're "let down" into the ground.

Woodchopper says, p. 194, that burr-combs between top-bars and super will make bees work sooner and better in sections. So they will if there's only foundation in the super, but I don't believe they will if there's a bait in the super.

A special wagon for bee-keepers is a desideratum. Why not have such a wagon on your price list, as well as a wheelbarrow? [Can. Send us your orders and we will give them our attention. In lots of 10 and 100 the price will be less.—Ed.]

A series of experiments which have been carried on under the direction of the Smithsonian Institution has developed the fact that the colored boys and girls in the Washington schools have naturally much better memories than the white children.—*Chicago Record.*

Brood rearing is not repressed by R. McKnight at any time. He said at Ontario convention: "I just let them go on as long or as much as they please; and the more bees that go into winter quarters with me in a hive, I expect the more bees will come out in the spring, and I shall have so much more working force."

Inquiries have come lately as to whether bees are taxable. I know no reason why they should not be taxable like any other live stock; but as a matter of fact I think they are exempt in some States. Assessors don't always know the law, and it might be a good thing if those who know would report as to whether or how bees are to be taxed, so a condensed statement might be made of all the States.

This winter, for the first time, I saw some genuine honey put up in a tumbler with a piece of comb in it. It came direct from the bee-keeper to the grocer. I wouldn't infringe on the adulterators' trade-mark in that way. [Yes, come to think of it I have seen such honey; but I agree with you that I would not adopt the adulterators' trade-mark.—Ed.]

Bee-paralysis amounts to something in a good many cases with Woodchopper—p. 194—which means, I suppose, that he lives in the South, for there it's a very serious matter. Last year, however, I had one case so bad—the only case I had—that I killed the colony, queen and all—the only colony I ever deliberately killed. [Woodchopper lives in Wisconsin.—Ed.]

Crimson clover.—Not encouraging are the words from the Experiment Station of Illinois. It reports: "Crimson clover is less likely than red clover to succeed in Illinois. Drouth and cold are its great enemies—notably drouth, especially in the early life of the plant. [Crimson clover around Medina is a great success. My eyes are now resting upon a beautiful field on the hill in front of the factory. Perhaps your experiment station in Illinois does not know how to grow it.—Ed.]

A divider, as described on page 52 by S. T. Pettit, is before me, and I'm inclined to believe it may nicely accomplish what he claims for it—the sealing of the outside sections sooner than it is accomplished in the ordinary way. At any rate, it's easily tried. [Yes, I believe the idea is a good one, and should be tried this summer. The ordinary dovetailed supers have a follower and tightening-wedge. In place of these, but on each side of the sections, may be placed a perforated separator with bee-space cleats on one or both sides. This would carry out Pettit's idea.—Ed.]

L. A. Aspinwall, in *Review*, gives something that may prove to be a decided forward step in the matter of controlling fertilization. A day or two after the virgin queen emerged he clipped $\frac{1}{16}$ of an inch from *both* her wings, thus limiting the time and distance of her flight, lessening the chance of mating with drones at a distance. In two or three cases he clipped ⅛ of an inch with success. In some places this would be practical isolation and control. [This is quite a point, and it might be well for our queen-breeders to test it thoroughly.—ED.]

"I ALWAYS LIKE to read footnotes to any article, and they catch my eye first, for they are generally the cream skimmed from the milk, and many a time these short notes contain in substance the sense of the entire article."—J. M. Young, in *A. B. J.* [From a private letter from Dr. Miller I am rather of the opinion that he makes this quotation as a gentle reminder. We have had so much good matter lately, awaiting space in the journal, that I reduced the length and number of the footnotes temporarily; but if that is not the wish of our readers I will start them in full blast again.—ED.]

MIXED. On p. 164 the editor quotes a passage from Stilson, and then says it was Whitcomb. In *Review*, p. 35, R. L. Taylor makes a slip, and attributes Cheshire's views on foul-brood spores in honey to Cowan. Or am I badly mixed myself? Say, Ernest, you and Taylor better have that fish feast, and be sure to invite me. [I am glad you caught Taylor. He is a man who is not apt to make a slip, so I feel that I am in good company. I discovered my mistake too late, and wrote to Stilson, explaining that I would call attention to the matter in our journal. This mention will set the matter right.—ED.]

EXPERIMENTER TAYLOR reports in *Review*, that from a colony badly diseased with foul brood he took outside combs of honey and fed to a colony busy rearing brood, without infecting it. A queen from a rotten colony failed to give the disease to a healthy one. He concludes that not all honey and not all queens will carry foul brood, and that perhaps germs are not carried about by the action of the air nor upon the bodies of the bees. [I myself have also taken the queen from a foul-broody colony, and put it into a healthy one—yes, done it several times with different queens; but never has the disease been so communicated, and I somewhat question whether it is ever so carried.—ED.]

"I AM MORE THAN EVER convinced that the secret of successful wintering is to pack warmly above frames, and that side packing between the walls of hives is unnecessary. With plenty of top packing and water-tight roofs, together with plenty of food in store, no one need fear the rigors of our winters." So says H. W. Brice in *B. B. J.*, and C. F. Muth preaches the same doctrine. [Such advice will do very well for mild climates, like that of England and the vicinity of Cincinnati; but it will not do for climates even as cold as our own. We have tried exactly the winter packing above described, and found we did not get as good results as where there was packed space *all around* the brood-nest. A few years ago I tried some colonies in single-walled hives with large cushions on top; but some of them died, while those in regular chaff hives came through in good condition.—ED.]

THE *Canadian Bee Journal* has a report of the late Ontario convention, and it looks as if our cousins across the line had given up quarreling and had spent the time in profitable discussion. The report is good reading. [The Ontario association is in a flourishing condition. Besides a government grant, it is made up of a lot of enterprising, hard-working bee-keepers. The geographical distances in Canada are not nearly so great as in the United States; that is, I mean that our neighbor bee-keepers are not so scattered, and it is a very easy matter for them to get together and make a big rousing enthusiastic convention. The Ontario meetings are held from year to year at places within comparatively few miles, while the meetings of our equivalent association, the North American, necessarily have to be scattered at points a thousand or more miles apart. For instance, last year the North American met at Lincoln; this year it takes a big leap over to Buffalo—a distance of about 1100 miles. Very few of those present at Lincoln will be present at Buffalo, and the consequence is there is a "new crowd" at each meeting.

AN ARTICLE by Dr. Bourgeois is being copied in the French bee-journals, explaining how bees hang suspended by means of suckers on their feet. Cheshire says there's nothing of the kind, but bees hang by hooks, except on a smooth surface, and then they stick by means of a clammy secretion, and they can't hang to the under side of glass if it's wet. A sucker would work all the better on *wet* glass. [Cheshire, although marvelously accurate in some things, made some errors. He may, perhaps, be right in stating that there is no suction-pad to the foot of a bee; but some authorities, I know, assert that there is such a device, and I have seen what looks like it in the microscope. When I was studying microscopy, some eighteen or nineteen years ago, I observed what has been termed a little sucker, or "pulvillus." While much more apparent in the foot of a fly, it appears, at least, to be present between the claws of the bee. Bees do not usually try to walk on glass; and in their efforts to fly through it they buzz up and down as though they could not stick; but after they are a little tired out I have seen them many times walk up the perpendicular surface of a piece of glass. How could they do it without a sucker?—ED.]

Ridge-Pole Musings

By R. C. Aikin.

SECTIONS; WEIGHT, SIZE, SHAPE, ETC.

Oh! selfish man, unjust, untrue,
With longing eye and grasping mind,
Endeavors, by some hook or cue,
To beat his friend—yes, all mankind.
The largest eggs he'll keep at home:
The smaller ones must sell, says he;
And nature's realm he'll ever roam,
Excuse to find or conscience ease.
The sections thin, still thinner yet—
Fifteen, fourteen, twelve will do,
Still a pound is what we get.
With me 'tis so—no doubt with you.
O manhood! rise, be just, be true;
Your weights full measure always give;
Reward in kind awaiteth you,
If good or bad the life you live.

This discussion about the weight of sections is still agitating bee-keepers. It seems to me strange that so many are led astray. What does it all mean? Friends, just open your eyes and you will see that the gist of the whole matter is a question of honest or dishonest weights. There is a disposition to get more than our money's worth—an evil that permeates the whole mass of our people. We can scarcely find a paper that does not carry advertisements of one kind or another offering *free goods*. Oh the hundreds upon thousands of ways to make us believe we are to get *more* than our *money's worth!*

I have observed for the past three or four years the disposition to have sections of honey light weight. I have no doubt that many—yes, very many—of our apiarists have not seen the spirit that underlies the whole matter. Suppose two honey-dealers do business on the same street. A gets his honey from Dr. Miller and such men, who would not produce any thing but full-weight sections. He buys by the case. If the sections are full weight he gets 24 pounds, say for $2.40. He will retail these sections at 15 cts. each, or two for a quarter. Mr. B buys a lot of light-weight sections, we will say at the same per case that A paid; but while A got 24 pounds of honey at 10 cts. per pound, B has paid just about 11⅔ cts. per pound for 21 pounds, supposing the light weights to run 14 ounces. So long as each bought by the *case* and sold by the *piece*, B, having bought light weights, would make the greater profits, because he had less freights to pay; but B's customers got less for their money, and his producers got more for their honey.

Shrewd dealers (a vast amount of wickedness is covered by that word shrewd) soon catch on to these things, and the next step is to say to the producer, "These cases are short weight; we can not pay you by the case." I feel sure that the greater part of the fraternity do not really intend to do wrong; yet after all if we watch ourselves we shall find we are willing to take all we can get.

Supposing, however, that we are honest, we shall ask pay only for net weights. It is very easy, then, when the dealer can get 24 sections at light-weight prices, to retail at a profit by the piece—yes, a *big* profit. We must not forget that the commercial world is not governed by the golden rule in its business. I am very sorry to say that even those who profess to be governed by this rule, many of them, leave the rule outside of their *business* transactions.

I know that dealers have been advising light-weight sections. It seems to me the reason is to increase profits by buying by *weight* and selling by the *piece*—a sort of deception. I am afraid *we*, too, have been hoping to get full-weight prices for our light-weight goods.

One thing that has led bee-keepers, probably, to produce light weights is the fact that our sections have not been proportioned right. The 4¼x4¼x2 will hold a pound when well filled between separators. The 1⅞ thick will hold a pound when full separators are used if plump, and attached at the bottoms. We find, however, that better work—nicer and better finished sections—can be had if a thinner section be used. I have no doubt that many bee-keepers have come to produce the light weights, not with intent to defraud, but to get a more fancy article. It is no easy matter to change the height or width of a section, but it is easy to use a thinner one. Whatever the causes that have led up to the thin or light-weight section, it is altogether wrong to sell 12 or 14 ounces of honey for a pound. The sections are supposed to be a pound. We call them *pound* sections in catalogs and everywhere. Customers will buy them for pounds. People get so used to being cheated that they expect to be, and many submit because they think they can not help themselves.

I have no argument to make against a thinner section, for I believe that the two-inch section is too thick to make a neat finish. 4¼x4¼x2 is too much of a chunk, and the more so in appearance as commonly made with the gross width of sides extending part way along the top and bottom bars. A section whose sides are one width, and top and bottom narrower their extreme length, is nicer looking, and will be better finished. This I observed years ago, when I changed from nailed sections to the one-piece.

There is one thing that makes it hard to do justice and sell by the section or case; and that is the fact that we can not govern the seasons—the flows—for we are sure to have lighter-weight sections in a poor season than in a good one, and this with the very same sizes and fixtures. This can be remedied somewhat by the apiarist understanding his business, and so managing by skill and improved fixtures and methods that the results in work will be more nearly equal. Our present hive system—or whatever you may call it—is about like trying to build a house a little at a time, and during a term of ten or fifteen years, and all the time trying to obtain the greatest amount of comfort, economy, and profit. When the structure is done it is an expensive, ill-proportioned, incongruous mass. About the only way to get the best results is to tear down the whole thing and build anew; and in the new, profit by the experience of the past.

If we must stick to the present size of section in length and width, let us keep it thick enough to make an honest section. I want here to protest against the custom of speaking of the thickness of a section as its *width*. I know to speak of a section when its mechanical construction *alone* is involved, we might speak of the material as 17 inches long, 2 wide, and ⅛ thick; but when speaking of it in reference to its capacity it has length, width, and thickness; and since the length and width are the same and regular, the variations the other way should be *thickness*, not width, as many call it. Lumber two inches wide will make a section two inches thick.

I have indulged in a few figures to find out the capacity of various sizes of sections. At first I calculated by outside measure; but I remembered that, the further we get from the cube or square, the more wood in the section walls. A 4¼x4¼ section in the flat is 17 inches long; and if one inch thick it contains, inside measure, 16 inches of *space*. A section 2¼x8¼ x1 would contain 16 inches of space, but in the flat would be 21 inches long. This shows that the true way to count for *capacity* is *inside* measure.

Here is a table comparing two sizes and various thicknesses.

4¼ x 4¼ x 2	32 cubic inches.
4¼ x 4¼ x 1⅞	30 cubic inches.
4¼ x 4¼ x 1¾	28 cubic inches.
3⅞ x 5 x 2	$34\frac{7}{16}$ cubic inches.
3⅞ x 5 x 1⅞	$32\frac{3}{16}$ cubic inches.
3⅞ x 5 x 1¾	$30\frac{17}{128}$ cubic inches.
3⅞ x 5 x 1⅝	$27\frac{251}{256}$ cubic inches.

A 4¼x4¼x1⅞ section, used between separators, and with bottom starters, and *well built down* to bottoms, will hold an honest pound. A 3⅞x5x1¾ has just a trifle more capacity in cubic inches of space, and will, I believe, hold a little more honey. When we used the nailed sections with top and bottom bars same width clear through, we got a better finish to both top and bottom. All these years I have wondered why we could not have our sections that way, but supposed that in making the one-piece section there was some trouble in the cutting that required the width of the sides to continue on to the ends.

Mr. Editor, can you not make a one-piece section with these features—i. e., tops and bottoms the same width throughout their length, and sides ditto, just like the four-piece section? I favor such sections, and 4x5x1¾, used with full separators. The top and bottom bars should be a trifle wider than the thickness of the finished comb, not more, if we want corners nicely filled.

Loveland, Colo.

[We can and have been making just such one-piece sections as you describe in your last paragraph. But as there has been so little demand for them we have discontinued listing them. The open-corner Danzenbaker section, but 4¼ inches square, would, I think, meet your approval—see No. 7 of our catalog, p. 12.

Regarding light weights, I can't see the matter just exactly as you do. The average consumer does not know how much a section of honey weighs. He only thinks of it as a chunk of honey costing so much. I think you will find that the so-called light weights sell for less money at retail per piece than the full pounds. The tendency nowadays is toward smaller prices, and in honey it must mean smaller or thinner combs; and in regard to these latter we must not forget they are of about the thickness of the average *store* combs in nature; that honey ripens more quickly and better in thin rather than in thick combs. There are arguments for thin combs outside of any supposed greed on the part of the dealer.—Ed.]

SHIPPING HONEY.

THE CARELESSNESS OF FREIGHT-HANDLERS.

By C. Theilman.

In Gleanings, page 9, we find a very valuable article on packing and shipping comb honey, by C. F. Muth. It should be read and reread by every producer and shipper for the benefit of both. I can agree with Mr. Muth on nearly every point set forth, but would add one more of the most important points on the transportation side.

There are probably but few shippers and receivers of honey who have had actual experience on the cars where honey and other goods and stock are shipped, as I have had, riding with such goods on the same train. Considering the way some of these cars are flung around in switching on the different stations *en route*, behind the engines, and sometimes sent a flying on a down grade with such a blow against the rest of the train as brings the stock on their knees, it makes you think there was a collision. It is a wonder that any whole section of honey is left on arrival at destination. No matter how well it may be put up and packed, especially if the weather is cold. There is surely more comb honey broken or damaged by the train men in this way than by any thing else in transit. Even the large outer crates are no sure guard against this collision-like stroke which I have witnessed at Chicago on honey packed in large crates sent from the Home of the Honey-bee, some of which was badly broken when we opened the crates. This mismanagement of the train men can not be too strongly impressed on the manager and general freight agents of the several roads.

I must say a good word for the men at stations on the C., M. & St. Paul R. R. All the comb honey I have shipped on this road, probably 200,000 lbs., arrived in good condition (without outer crates), only one crate being reported broken. I have watched their hands at depots, and without exception they handled honey as carefully as I would, without their knowing that they were watched. They are educated to it. On most other roads it is difficult to ship honey and receive it in good and sound condition at destination points.

I can not agree with Mr. Muth when he says, "Unless there is a collision, or cases are upset or flung about, combs hardly ever break while in transit, and they do not break if hauled in a wagon over a rough pavement." This, of course, depends very much on the kind of pavement and wagon used. One without springs, or the heavy trucks used by draymen, are surely not fit to haul comb honey on. Some will get damaged, or more broken than it already is.

The pavements in Cincinnati must be in much better condition now than when I saw them in 1854-5, and in far better condition than those in Chicago, or other large cities at present, for considerable honey is broken down by unsuitable wagons on those rough pavements. Comb honey should be hauled only on light spring wagons, especially on rough roads or in cold weather.

Theilmanton, Minn.

[This is quite an important matter. It would be well for our subscribers to give us the names of those railroad companies who make it a point to see that their men handle their freight with reasonable care, and also those companies which smash up honey. The employees are not so much to blame as their companies. We know that there is a great difference in roads, and, other things being equal, patronize those which don't smash. Let's have the names of the companies.—Ed.]

LATE-REARED QUEENS SUPERIOR, AND WHY.

By Geo. L. Vinal.

Mr. Editor:—I noticed in Dr. Miller's Stray Straws, Jan. 15, page 41, that he says, "Herr Guenther, late-reared queens are the best," etc. Now, I have kept bees about 25 years, but not to study the subject much for more than about 10 years, and I found that out. Page 530, July 15, 1896, Gleanings.

Not to tell what my grandmother knew, but she often used to say to me, when a boy, "A swarm of bees that comes off in buckwheat time, the swarm that is left will do better the next spring than any of the others." Her knowledge was from observation. She used the box hives as almost every one did then, forty years ago, and it was partly her observation that led me to experiment on late-reared queens; and I have frequently noticed that, whenever I have purchased queens late in the fall, from either you, Alley, Lockhart—in fact, from almost any reliable queen-breeder—they invariably proved better, longer-lived, more prolific, and gave a larger and stronger bee, than one purchased in the early part of the season. I do not guess at this, or *think* it is so, for I keep a record of every hive, of every pound of honey that comes from each hive, of every swarm, when the queen was introduced, whom purchased from, how many new combs each colony builds, and have for a number of years; and as I look back over my records I am convinced more and more every year that for me, at least, late-reared queens are the most profitable, and why?

1. I find them larger, as a rule.
2. They do not seem to want to swarm so much, at least the first season.
3. They build up quicker in the spring, all things being equal.
4. The bees seem more hardy, and are better workers.
5. When they swarm it is generally a rousing big one.
6. With me they winter better.

We have had quite a spell of warm weather here; and in looking over the bees I find that, in eight hives, the bees that are the most quiet are some whose queens were hatched from the 5th to 18th of October. The eight hives I speak of I destroyed the queens. They were from two to three years old in October, being some I raised myself. I did it to try the experiment. I think the experiment is worth trying. One of the best queens I have is one that I got from you. I wrote to you about her, and you wrote me that some one in North Carolina, I think, raised her. You sent him my letter, and I afterward got a letter from him, stating the queen that I had was raised late in the fall, and he would like some of her daughters; but it was then November, and I had none to dispose of.

I wish some of the expert queen-breeders would make observations; but perhaps it would hurt the queen-business in the early part of the season.

Charlton City, Mass.

[A good many reports have come in, showing that late-reared queens seem to be better. I can hardly see *how* they can be better than those reared in spring or summer, under *proper conditions*.—ED.]

HONEY VINEGAR.

NOT SUITABLE FOR PICKLES; HOW TO MAKE HONEY LEMONADE.

By C. Davenport.

My experience in making honey vinegar may be of interest to some of the readers of GLEANINGS who are thinking of making some of it the coming season. A few years ago I tried making it on quite an extensive scale in a number of barrels which were set up from the ground in an open shed facing the south. The heads of the barrels were removed, and they were kept covered with light cloth in order to exclude dirt and insects, but still admit plenty of air, which I found to be a very important factor. I had no difficulty in making strong vinegar, the strength depending, of course, upon the amount of honey used. Clover and basswood honey made vinegar of fine flavor; but that made from dark and inferior honey had a somewhat bitter taste, and I doubt whether there would ever be much demand for that made from such alone; and there is seemingly an objection to that made from clover or basswood honey; for, while the flavor and strength are all that could be desired, it seems to cut up or soften pickles that are made with it. I noticed this at our own place; and a good many to whom it was sold complained of the same thing. Most of the vinegars of commerce, instead of cutting or making pickles soft, harden them. Of course, that made from honey is all right to use on lettuce, salads, or pickles that are to be used soon; and if the defect in it which I have mentioned could be remedied, there could be a large amount of honey very profitably used in this way; as I found that 1½ lbs. would make a gallon of very strong vinegar, and it can be made in large quantities without much work or outlay. Here we have to pay from 20 to 35 cts. per gallon for vinegar, and the cheaper grades are not fit to use.

There is much more vinegar used than any one who has not inquired into the matter would believe. Possibly a small amount of some kind of drug or acid could be put into honey vinegar, which would overcome its tendency to soften pickles.

There is another way some honey can be very profitably used by bee-keepers, and that is by converting it into honey lemonade, as occasion may offer. Ever since I read that article in GLEANINGS, by John C. Wallenmeyer, in which he spoke about honey lemonade, I have had a desire to test the matter; and as the people of our town celebrated the Fourth of July last year, I resolved to give the matter a trial that day. I was not able to leave home myself, but I got two young men in the neighborhood interested in the matter, and they were eager to try it on shares. We took a low wagon with a big hay-rack on it, and fitted a canvas top over it and to one side. The other side was left open except for a strip of canvas at the top, on which was printed in large letters of red and blue—

"PURE HONEY LEMONADE."

I furnished a number of newly built combs in brood-frames to hang up on the back side of the rack. Quite a display was also made of section honey, and extracted in glass of different sizes; a frame of bees with a queen, in an observatory hive, and two boxes with wire cloth on both sides, containing bees, were also used to attract attention. The whole was decorated with evergreens, flags, and flowers. I furnished a steady team so the boys could haul the "rig" around where the people were the thickest.

Before and after the Fourth we had some very hot weather; but the glorious Fourth was a cool, cloudy, even chilly day, compared with the weather just before; and on this account our sales were not what they would have been on a warm day. Many of the other lemonade-stands did not pay expenses; but the boys gave me $13.45 as my share of the profits on the sale of lemonade. The whole time the three of us spent in arranging the wagon was not over half a day. The lemonade was made just the same as any, except pure extracted clover honey was used to sweeten it, instead of sugar. While I do not know that many would like its taste any better than that sweetened with sugar, it is certainly much more refreshing, and has a pleasant or stimulating effect. We used a large amount of it at our place last summer; and many of the neighbors who drank some, bought honey to make it.

In selling honey lemonade at a public stand, those who buy it seem to notice its refreshing effect, and return for more. I believe it is a very healthful drink, and I am going to see if it will keep when bottled up air-tight. If it will I intend to put some of it on sale this summer among druggists and grocers.

Southern Minnesota.

[Friend Wallenmeyer says all honey, as a sweetener, is not as good as sugar and honey; but, besides what Mr. D. says, quite a number have testified that lemonade where honey only is used as a sweetener is first class. There might be, of course, a difference in tastes.—ED.]

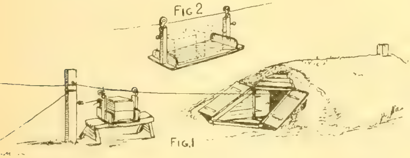
BEE-CELLAR AND HIVE-CARRIER.

By N. Young.

As there were some inquiries made about a year ago about cheap bee-cellars or caves I herewith send you an illustration of a cheap one I built, and a very good one, I think, or at least it looks as though it would last for many years. It is made as follows:

I first dug out a place 6 feet deep, 8 wide, 16 long; then I made the framework of old railroad ties by setting one in each corner of the cellar and two on each side, about in the center, letting them all into the ground about six inches at the bottom. I then laid ties lengthwise on top of the posts and spiked them on them. Next, ties were laid crosswise close together, forming the roof. As the ties are 8 feet long, the top is 2 feet higher than the surface of the ground. This space was sided up with ties except at front end. The illustration will show about how it is finished. All is then covered with dirt, except the doorway. Those ties were not much decayed. They were taken from bridges where the railroad company was putting in new work. I wintered a part of my bees in this cave last winter quite successfully, and have about 70 colonies in it this winter. The remainder, 120, are under my dwelling-house in the cellar.

Now I will tell you how I put my bees down cellar by the help of the wire hive-carrier. See description in GLEANINGS, page 425, 1896; also illustrated here, showing front of cave, but somewhat changed and much improved.



First get a post about 8 feet long. Set it about 10 or 12 feet from the first steps of cellarway. Now drive a stake about 12 or 15 feet further back, which we will call the anchor-stake. Then put on wire or cable chain to hold the main post in place. Now you must provide some way to fasten the end of the wire to the farther side of the cellar wall below. This I did by setting a post in the bottom of the cellar and nailing it to a joist overhead, and in range with the center of the doorway and post above. Then I put one end of the wire around the post in the cellar about half way up, and about 6 feet high on the post above on the outside, stretching it tight with a wire-stretcher. The stretcher should remain in place to tighten up when the wire becomes a little slack.

The hive-carrier I made for this work is made as follows: I first got a board 5 feet long and 14 inches wide; then two pieces of 2x4 scantling, 10 inches long; set one at each end of the board on top; nailed them fast; then next a board 6 inches wide and 14 long nailed to inside of post and to bottom-board. Next put on the barn-door pulleys; hang one end on wire as you see in illustration; hook the other end to the post by means of a wire hook—see illustration—and at the same time the one end is resting on a bench about knee-high. This opens it up nicely to receive the hive; then set on the hive at the forward end; raise the hind end; place pulley on wire; unhook from post; then all you have to do is to walk behind and hold back; and when you get down where you want to stop, let one end down on a box, or something convenient, and then take off the hive.

This contrivance has worked first rate with me; and as I have to handle my bees all alone I think it a big help. I expect to take them out of the cellar in the spring in the same way. It will save all that lugging up the steps.

Ackley, Iowa.

VALUE OF DRAWN COMBS.

WILL THE BEES GNAW DOWN THE NEW DRAWN FOUNDATION?

By Wm. Slaubaugh.

As soon as honey comes in I give from one to two L. supers filled with as much drawn comb as will reach around; that is, I fill up a super partly filled with drawn comb and foundation. As bees do not gnaw down drawn comb for me, I put on supers with sections before much honey is coming in; and to give plenty of sections *in time*, is preventing a good deal of swarming. As soon as a super of sections is partly filled I lift it up and put an empty one in and the partly filled on top. If the bees seem to be crowded I give them from two to four supers of sections to prevent them from swarming all I can.

But perhaps you ask, "How at the end of the honey season, with so many unfinished sections?" Giving the bees all the room they can possibly occupy, if the honey season is not an extra one, will result in a great many unfinished sections, and also a great many drawn combs not filled with honey. Will the drawn comb balance the unfinished sections? Yes, more than double, for me. I sort out all sections less than two-thirds filled, and keep them for bait sections. I do not want to put on a single super of sections without one or two bait sections. These bait sections, in a poor season, will sometimes be filled when the other sections are left untouched. If I have drawn comb to fill my supers, say half of the sections or more with drawn comb, it is no trouble for bees to occupy sections at once. But how much more so, if The A. I. Root Co. could furnish us with drawn comb for all the sections in the supers!

How about my sections that are filled more than two-thirds? Well, I put my honey in sections into three grades. The sections two-thirds filled I sell in my home market here for 10 cents; the sections more than two-thirds filled I sell at 12½ cents. These partly filled sections sell here in my home market as readily as do the full ones.

If we turn to the honey column for Feb. 1, the fancy whites are only from 11 to 14 cents; so I think I am doing well in my home market by selling my unfinished sections from 10 to 12½ cents. My full sections I sell at 15 cents per section without regard to color or kind of honey.

As soon as you can give us drawn comb, then we can do away with giving the bees so many more sections that they finish just in order to get a big lot of drawn comb by the bees for the year to come.

But how about your drawn comb in the gnawing-down process? The comb drawn out by the bees is never gnawed down by the bees, though not a drop of honey is coming in, while they will tear down foundation that is not drawn out. If you can give bee-keepers drawn comb, both for sections and brood-chamber, I think it would add tons of honey to the bee-keeping fraternity.

Eglon, W. Va., Feb. 13.

[The drawn comb referred to in the foregoing article is that which had been previously drawn out from foundation. In answer to the last question, would say that so far the bees have not gnawed down the new drawn or deep-cell flat-bottom foundation. See result of an experiment in the month of March, reported in the editorial columns.—ED.]

DEEP SPACE UNDER THE FRAMES.

THE IMPORTANCE OF A WARM BROOD-NEST FOR COMB HONEY.

By F. Danzenbaker.

Mr. Editor:—As you refer to my advocacy of a deep space under brood-frames, in your footnote after Mr. S. T. Pettit's valuable article on page 51, I wish to say that heat and ventilation are two prime factors in the production of fancy comb honey, of vital importance. He says, "Bees generally commence at or near the center of the super." They *always* cluster together and begin in the center of the cluster. If the swarm is small and hive large, they will cluster in the warmest end or even in a corner, that the walls of the hive may help to retain the heat on two sides while they form a living wall of bees on the open side. They must generate and maintain 80 to 105 degrees of heat continuously, even if it takes nine-tenths of the bees to do it, and they need no more. In warm weather three or four colonies may be hived in a barrel, and fill it; but half a peck of bees may be hived in a half-peck, if carefully wrapped up to help retain the bee-heat, and they will fill it too. But if half peck of bees are put in a large hive they must cluster in a corner of it, and have but few bees to spare for gathering; and the little they collect is stored within the cluster, to ripen. If a gallon of raw nectar were placed in the bottom of the hive they *will not* take up into the cells more than they can cluster on to ripen, any more than a horse will drink water when it doesn't need it. Two hives may be standing side by side when there is plenty of honey to be had. One may be rushing, and the other doing nothing. The one has the heat to cure the honey, the other has not, and the thermometer will prove it every time. The idle colony is doing the *best thing possible* in staying in, to hatch the bees needed to get the heat up to the working pitch, which may be in a week, and they are rushing too.

Many times I have found colonies with empty comb, only a few cells of uncapped honey stored right around the brood, with the queen cramped to laying several eggs in each cell. Such a colony can be set to work at once by supplying with young bees until the required heat is supplied. The super is only so much more hive space; it is of no use to a colony of bees until they have bees enough to maintain a working heat in it; but it is a drawback if it is taking heat from the colony. Bees may be working vigorously in one set of sections, and when given another will almost stop and be accused of pouting, when they are doing the only sensible thing by clustering at home until they have the bees to keep up the heat to the ripening-pitch, not for a few hours in the middle of the day, but for all the time, day and night alike. A super that gets so cool at night that the bees can not stay in it, or so hot from 10 to 3 o'clock in the day that they are obliged to leave it or suffocate, will not do—thus losing half the day and two-thirds of the night. Bees make honey by brooding on it, and they can not succeed unless they are there all the time, any more than a hen can hatch chickens and leave the nest half the time. The fact that bees do *invariably* begin in the super *directly* over the center of the brood-nest, and finish the honey there first, and best where the heat is sure and steady, is proof enough, and they are sure of the sides for the opposite reason. A good cook can brown cakes with enough heat; but with too little they will have a scared-to-death look; and the cook caring for reputation will wait until the heat is right, that the food may be fit to eat.

Bees gather honey to feed young bees; and unless there is heat enough in the super to ripen it there it will sour; so they store it in the brood-nest until they have it solid on all sides and over the brood at the top of the deep brood-frames. When Mr. Pettit says, "Bees pass slowly and reluctantly over well filled combs or capped honey in search of store room," and they will not at all—in fact, can not—until the super is warm, he gives half the remedy when he says, "Give an entrance 1⅜ inches by the width of the hive," by supplying lots of air, as it comforts the bees and retards swarming." This enables them to stay in the super all day. Now, if he will wrap up the super in such a way that a uniform even temperature is maintained at 80 or 105°, all right; he will find the sides and corner sections filled too, and nearly all at the same time. The super will not get too warm, if shaded from the sun, with ⅞-inch air-space under the frames. I have used 1½ inches, and it is far better than ¼ inch to get the bees in the super. When crowded they will cluster on the outside for air. If they were set up on four bricks it would make the super the warmest part of the hive, and then the honey would go there sure. Of two extremes, no bottom at all is better than the regular ⅜ inch and deep frames for comb honey. My new hive embraces these features with others.

Washington, D. C.

[Here is another article that emphasizes the same point.—Ed.]

KEEPING SUPERS WARM.

THE USE OF PACKING.

By Adrian Getaz.

In reading over my last contribution to Gleanings I find that two points need further explanation. The first one is concerning the necessity of having the first supers given in the spring warm enough to permit the bees to work therein freely, not only during the day but also during the night. It is, perhaps, not generally understood that during the day most of the bees are in the field gathering honey. This is deposited in the nearest cells, and only a part of it carried to the supers. During the night a great part of the field-bees (if not all of them) help build the comb and transfer the honey from the brood-nest "up stairs," evaporating it to some extent at the same time.

It is evident that, if the supers are not warm enough, the night work will be curtailed, and the honey will remain in the brood nest instead of being stored up in the surplus apartments. This is why our leading bee-keepers insist that the supers should not be given too soon, and not more at a time than the bees can well fill.

Much has been said upon the necessity of keeping the brood-nest warm in the spring, but not much about keeping the supers warm enough, at least during the fore part of the honey-flow. Here in East Tennessee, on account of our elevation above the level of the sea, the nights are cool through most of the summer, and the above consideration is very important. I suppose the same is true of all elevated countries, the whole of the Alleghenies, part of California, and some of the Western States.

As to the best way, "I don't know." I use to a great extent double-walled chaff supers and covers (the brood-nests are also double-walled). The objections to them are the cost and the weight. Outer cases can be used advantageously with temporary packing. For that kind of packing I prefer rags to any thing else, as they can be put in and taken out easily without making a muss like chaff or shavings.

With sufficient protection, so as to retain the heat of the colony fully, more room can be given in the supers; and this will in a measure take the place of drawn comb, for it is evident that, when only foundation is given, what little honey can be put in each cell will make a considerable amount if enough cells are there. And if the warmth is there, but little time will be required to draw the foundation out. It has often been stated that the bees failed to draw thick foundation out sufficiently. I suspect that the lack of sufficient warmth has very often, if not always, been the cause of it.

EXCESS OF NURSE BEES AND LARVAL FOOD THE CAUSE OF THE CONSTRUCTION OF QUEEN CELLS.

I said in my last contribution that an excess of larval food was the cause of construction of queen-cells. It may be remarked here that the queen-cells (barring the case of loss of the queen) are constructed only when three conditions are present.

1. Nectar and pollen coming from the field.
2. Numerous young bees, or, what is the same, nurse-bees, producing larval food.
3. An insufficient quantity of brood to feed, due either to lack of comb for the queen to lay in or to a failure in her laying powers, or, I think very often, both together.

If either of these conditions is lacking, no queen-cell will be constructed; and even those started may be destroyed when one of these conditions happens to disappear completely. I will give a few examples.

If you destroy the queen-cells of a colony ready to swarm, and divide that colony in two, completing both hives with empty combs, the probability is that both will construct queen-cells again, and, of course, swarm. In fact, it will happen in the majority of cases. Now, if it was merely a question of space, why should they do so? But the fact is, the discrepancy between the number of nurses and the amount of brood to feed still exists in both hives, hence the construction of queen-cells.

But if in a few days you cut out these cells, a second set will never be started (unless one of the queens happens to fail and is about to be superseded). Why? Because by that time there is the brood of two queens to be fed, while only the young bees of one are there to do the work.

Very often people have tried to prevent swarming by taking away a comb of brood occasionally. The process has been sometimes successful, and often unsuccessful. If the comb subtracted was of eggs and young brood, the remedy was worse than the disease; for it left the nurse-bees still in excess. The comb taken away should be of sealed brood, so as to diminish the number of nurses, and increase the room for the queen to lay in.

Dr. Miller tried to prevent, not swarming, but increase, by the following process: In the place of the colony that just swarmed, put an empty hive with one or two combs of brood; then the supers of the old colony on the top, then the old colony itself on the top of the supers, shaking the majority of the young bees in front of the new hive below. He says that the old colony will give up swarming entirely, and destroy all the queen-cells—at least, they did the first year he tried the process; but the second year he was not always successful.

Well, the old colony on the top was then without enough young bees to feed the brood, and that is why they gave up constructing queen-cells. Probably there were not enough bees left to protect the cells against the attacks of the old queen, and she succeeded in destroying them.

I "don't know," but I am pretty nearly sure that, if Dr. M. did not succeed as well the second year, it is because he was careless and did not shake off the young bees from the combs as carefully as he did at first, and therefore too many were taken "upstairs" with the old brood-nest.

Again, Dr. M. tells us that he tried to prevent swarming by giving a young laying queen in place of an old one, destroying whatever queen-cells might be there, but without success. Now, why is it so, while, if you take the old queen away, and let the colony raise another queen of her own, no swarming will take place with her? I see but one explanation. In exchanging queens the conditions are not changed, or, at least, but little, and that on account of the superior laying power of the young queen. But in allowing the colony to requeen with one of her own cells (the apiarist destroying the others), the bees are necessarily without brood to feed at all—at least, during a few days before the young queen begins to lay. I think that, during these few days, quite a number of the young bees take to the field work and give up the nursing business; so when the young queen begins to lay, the number of nurses is considerably reduced; and this, coupled with her superior laying powers, puts an end to the discrepancy between nurses and brood—provided, of course, there is sufficient room to lay.

With sufficient room and a good queen I have often prevented swarming by taking away a comb of sealed brood before the number of nurses was too large, and a second comb a week later, perhaps a third one at most. This is a very good way if a moderate increase is wanted, without giving up a honey crop.

Knoxville, Tenn.

RESULTS OF FEEDING BEES FROM EARLY SPRING TO BASSWOOD BLOOM.

FEEDING A LA BOARDMAN NOT PROFITABLE.

By F. A. Salisbury.

Wanting to secure a large crop of honey in the year 1896 we concluded to try the Boardman plan of feeding, and began feeding May 1, continuing till about June 25th, feeding about 1 lb. of syrup per day to each of 58 colonies. Syrup was made in the extractor by the process given in The A. I. Root Co.'s catalog; the same amount of sugar and water by measure or weight; it does not make any difference in this regard, as sugar and water, bulk for bulk, weigh nearly the same. After syrup was made it took about 30 minutes to fill all the feeders. This is made possible by having bees in the house-apiary with feeders made in the bottom-boards. There is no coming in contact with bees, and no occasion to use a smoker. The next morning, when about to feed, a glance along the shelves would show which feeders needed replenishing, the feeders being 1-lb. Muth honey-jars. Some colonies would empty the feeders in two or three hours. As we said before, we kept this feeding up nearly two months, feeding during that time over 4 barrels of sugar. Cost of sugar about $95.

A short distance from us is an apiary of about 100 colonies. These bees were not fed during this time. Ours were fed daily. One would expect to see our 58 colonies increase in strength, and swarm early; but the truth is, ours were later in swarming, and weaker in bees, by the time basswood opened. Now, I do not know why ours should be so backward, seeing they had over four barrels of sugar fed them, unless we fed so fast that all the available room in the brood-chamber was filled with syrup which prevented them from breeding. Last year, when reading friend Elwood's results of his feeding, I said he was wrong; but now I agree with him that it does not pay to feed bees. Our crop of honey was about two-thirds of the average of others near here; and with the cost of sugar and work taken out it left us about even. I shall feed no more sugar to stimulate. The only time I see that sugar feeding can be made profitable is in the fall when stocks are short of of stores, when enough should be fed to carry them through till honey comes again.

Possibly if we had feed all the four barrels of sugar during the week just before basswood opened we should have had a different showing; but I do not think enough more honey would have been gathered to pay for the sugar and cost of feeding.

There is one thing I have noticed in making syrup by the cold-water extractor process; and that is, it does not granulate either in or out of the comb. We have about 10 lbs. of syrup made last June that has stood in the house-apiary from that time till now. Of course, during the summer it evaporated down to a thick syrup, and now is clear as crystal, and thick, with no granulation. Syrup made by boiling will granulate more or less.

Syracuse, N. Y., Feb. 9.

[Two years ago when I visited Boardman he was the only one around who secured any honey, and he attributed it to the fact that he fed them up to the honey-flow, filling the brood combs, so that the first and all the honey *had* to go into the supers. This seemed to be a big thing, and I can't quite give up that it is yet. However, one of our neighbors, M. G. Chase, of Whittlesey, O., has tried the plan and succeeded no better than you; at all events, he thinks he can't afford to do it again.

Let's have more reports from those who tried the plan, for many did try it. If nearly all made it a failure then we must give up.

Regarding the cold process of making syrup, Mr. Salisbury is the man who gave us the plan. This is surely a success. Our bees have had this syrup for two winters, and they never wintered better. To go back to the old mussy way would be like going back to box hives. A Mr. Laing, of Ontario, who visited us recently, said this idea alone was worth to him several years of GLEANINGS.—ED.]

CHIPS FROM WOODCHOPPER.

BEES GATHERING POLLEN IN THE MORNING, AND WHY: A VALUABLE ARTICLE.

R. C. Aiken says bees gather more pollen in the morning than later, and wonders why. Well, they do, and then again they don't. It depends upon the kind of things they are getting it from. Some plants yield a somewhat sticky pollen which they can pack all day; and unless the supply is exhausted before night they will bring it all day; but corn, ragweed, and plants of that class, yield a very dry powdery pollen which can not be collected at any other time of the day than early morning, so they simply take advantage of the best time to pack it, which they can't do after the sun has been shining a few hours, while they will bring nearly all kinds of tree pollen until dark, if the weather lets them work so late, unless the supply is exhausted sooner.

CAUSE OF FOUNDATION BEING ATTACHED TO SEPARATOR, OR GETTING OUT OF PLUMB.

It is caused by the weight of the bees more than any thing else. If the bees come up and fill the whole super *en masse* at once, there will be no trouble; but if, as is generally the case, they begin in a cluster in the middle, and enlarge the cluster as they get more in earnest, the outside bees in the cluster will, by taking hold of the lower edge of the foundation, and hanging to it while other bees hang to them and to the separator next nearest to the center of the cluster, and other bees working at the foundation, mostly from inside nearest to the center of the cluster, it will slowly swing out of plumb; and as they draw it out it becomes permanent, and the result is a defective section. The same thing and the same reason hold good in full sheets of foundation in the brood-chamber, unless the frames are wired, and I get rid of the trouble by turning the frame around, when it will soon draw back and nearly always become self-supporting before it gets too far back the other way. But I like Dr. Miller's plan of bottom starters much better than putting on a few sections at a time, as Manum does. It's less work, and makes a better job of filling down to the bottom every time, and so it ships better, and the sections weigh a little more. And, Dr. M., if you will use medium brood for the bottom starter, and make them only two rows of cells wide, you won't be troubled with their tipping over as they do if made from thin foundation, and the bees work them just as well. But, Dr. M., aren't you drawing on your imagination when you talk about a hive being two inches out of plumb? If one of my hives tipped over that much I should think it might be trying to roll over and crush me (but there would not be much danger of the crush unless they get heavier than they have for the last two years).

BEES STOPPING TO FILL UP CRACKS BEFORE PUTTING HONEY IN.

It depends entirely on circumstances whether they do or don't. If they are up in the sections some days before they begin to work they will chink them up; but if the weather is hot, and the honey-flow good, they are just as apt to fill and seal them before doing any waxing at all, and they sometimes used to fill and cap entirely the large wooden boxes which I used to make before sections came in vogue. I frequently made the top out of two pieces, and they would shrink so that I could see down, and I saw them filled and capped, so that I could look right down between every sheet of honey after taking them off and getting the bees out, and not a particle anywhere; but if left on long after they were filled they would put in propolis; while if the weather was cool, and they wanted them warmer, they would fill them with white wax, the same as they used in making comb. But, doctor, it made me laugh just a little to see you cite Doolittle to a case of bees storing honey in extracting-combs with a crack 12x½ inch over their heads. Now, doctor, haven't you been around bees long enough to find that they never stop up a crack that they can go through freely? But may be your bees can't get through a half-inch hole—must be some dorsata about them.

SIZE OF SECTIONS AND LOW PRICES.

In answering a question as to the merits of a tall section over a square one, one writer makes a point which I think is a good one; viz., that it is a detriment to bee-keepers when they adopted the panel sections, and says the price of honey would not have been lowered if we had stuck to the large section, and he is right; and another thing, besides the extra work of setting up, putting in foundation, scraping, etc., is that the bees will put up more honey in large sections than in small ones, just as they will beat themselves if allowed to work all together in a large hive, all in one body; but then, we don't want to raise chunk honey, so must have some kind of package to get it stored in. But I can get about 10 lbs. more honey in 2 than in 1 lb. sections, which would allow for a couple of cents less; but then, I can't sell them all at any price, except a limited number around home; they won't sell at all in Chicago unless there is a great scarcity. So much against my will, I am obliged to use the 4¼x4¼, and I prefer them 1¾ wide, and use without separators, and have but very few bulged or crooked combs; and if well filled they weigh nearer an even pound than any other size I ever had. Then I doubt whether as much honey is sold as there would be if the 2-lb. sections were all there were in use, for scores of people would buy just as quickly as any way, and, once bought, it would be eaten, and they would buy again just as quickly as if they had bought one pound.

LEAVING HONEY AT STORES TO SELL.

This, as T. S. Comstock says, would be all right if all grocers knew how or cared how they handle honey. I have seen just lots of honey just murdered by grocers and their clerks, by ignorance in removing sections from cases, or by taking hold of it with the whole hand, letting the fingers dent into the comb, and setting the honey to running out; and some of them will set a case on the counter, cover off, and let everybody who comes in stick a finger or knife or pencil in just to get a little taste; and it is surprising how many people will try that little taste; and it doesn't take much to spoil a case of fine honey. So if you can't find a careful man who understands handling honey you had better sell it before you leave it, or you may be told when you come around again that the honey is in bad order, and won't sell; and when you see it you will believe he is telling the truth; but it will not be so easy to make him believe *he* is at fault in the matter. WOODCHOPPER.

[Woodchopper is an old correspondent who used to know how to hew pretty closely along the line, and it is evident he hasn't forgotten how to split off from his store of experience great chunks of truth or fact yet. Let the chips fly more and often, friend W., even if they do hit right and left. Why the bees gather pollen in the morning from some plants is very reasonably explained, and I doubt if even a few knew the reason. That other point, that bees don't always stop to chink up cracks before storing honey, is well taken. Bees do nothing invariably.—ED.]

If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N. Y.

APIARY NEAR BLOSSOMS.

Question.—What would be the difference, if any, in the quantity of honey gathered from a certain field of clover, basswood, or buckwheat, if my apiary is right among the blossoms, or from one to one and a half miles away? I desire to locate nearly a mile and a half from the thickest pasturage, but am undecided what to do for fear my bees will not do nearly as well as they would if I sacrificed my own convenience and moved nearer the better bee-pasturage.

Answer.—Theory claims, in view of the fact that bees do not know instinctively how to go directly to the nectar-bearing flowers in the vicinity of their homes, but must depend upon their smell and an industrious search for profitable honey-gathering, that therefore it stands to reason that less time would be lost in getting the whole force at work on the honey-producing flowers, where the latter are plentiful *very* near the apiary, than would be the case if the pasture were from one to two miles away. It is claimed that every young bee which enters upon the service of field-worker must learn where the best forage-grounds are before it can work to the best advantage. Others claim that a hive whose bees all have to travel one or two miles from home for their stores will soon become depopulated, the result being a half less honey, with very weak colonies in the fall, over what would accrue had the apiary been located right in the midst of the flowers. Probably no one could give a very definite answer to the question without trying the experiment with an equal number of colonies right in the midst of the blossoms, and an equal number one or more miles away. I do not pretend to be authority in this matter; but my experience would indicate that those who argue that bees must be set right down in the very center of the honey-producing flora do this more from theory than from actual knowledge; for I am quite sure that there would not be enough difference in the results, at the distance named, to pay for moving the apiary up to the bloom during the time of blooming of the flowers, and back again for the rest of the year. Bees fly very rapidly, and the exercise seems to be invigorating; and if those who argue depopulation of hives could have been here last season when my bees worked for eight days on basswood from four to eight miles from home, and seen how the honey in the sections grew as if by magic with hives gaining in number of bees all the while, I think they would not put forth such fallacious claims. From proof given in back volumes of GLEANINGS, I am convinced that bees go from one to three miles from home from choice; and if I were in the questioner's place I would not give to the amount of ten dollars in sacrifice, in changing a position a mile and a half from the honey flora to one right in its midst. I have had good crops of buckwheat honey stored when there was not a square rod of buckwheat in sight of the apiary, and not to exceed 13 acres within the distance stated (a mile and a half), while hundreds of acres lay from three to five miles away. This, with tons of basswood honey stored from the top of the heights, seven and eight miles away from my apiary, during the past 25 years, leads me to think that the center-location parties have not had any practical experience along the lines they are talking about.

REARING QUEENS.

Question.—I have seen it stated that queens reared by natural swarming are superior to those reared from eggs laid in worker-cells. Is this a fact beyond reasonable question? If so, how do our queen-breeders secure the thousands they send out, all from swarming-cells?

Answer—It would be but reasonable to infer that a plan of queen-rearing which brought vigorous healthy bees, all the way from before Samson's time down to the present, in their native haunts, must produce queens that were very good, to say the least. But to say that an egg laid in a queen-cell by the same queen was a better and more vitalized egg than was one laid in a worker-cell, is something that very few would be ready to assume. From years of close observation I can not think that there is any difference in favor of the *egg*, no matter where it is laid, whether in queen, worker, or drone-cells, providing said egg is properly fecundated; but the difference comes in the treatment of the innate life of that egg after it has come to the larval form. In natural swarming a larva intended for a queen from the time it first breaks its shell is nursed *all its larval life* with a fondness equal to any mother's fondness for her child; and in this nursing we have the part which plays for good or evil in the future queen. If by any means we can secure a like condition for the just-hatched larva from an egg laid in a worker-cell, we can secure a like-conditioned queen; and I have not a single doubt that thousands of the queens sent out by queen-breeders are every whit as good as those reared under natural swarming, for the most of our queen-breeders to-day spare no pains to bring about an equally favorable condition to that under which natural swarming is conducted while rearing their queens. Much poorer queens than those reared under natural swarming can be produced, and will be, unless the work of queen-rearing is done rightly; and it was because that, in the infancy of the queen-rearing business, very little attention was paid to the condition of the colonies while feeding the embryo queens that the subject of where the eggs were laid was advanced. God placed man at the head of and gave him control over all animate nature, and thus it has come to pass that he has been enabled to equal, if not to improve, every thing which he has turned his hand to, and queens are no exception to this rule.

Heads of Grain FROM DIFFERENT FIELDS

GOOD NEWS FROM CALIFORNIA.

I have just been out two hours in the rain, guiding the torrent (as it passes my apiary) to make it fill up holes, and level up things generally. The rain and snow have kept me from the postoffice. Three inches of snow and 4¼ in. rain (including the snow); this time 17 in. total. This will ensure a honey crop here so far as *rain* is concerned. R. WILKIN.

Newhall, Cal., Feb. 18.

HONEY AND SALAD OIL FOR COUGHS.

Our people down here in Canada place much confidence in clover honey for medical purposes. Physicians often order it. A mixture of honey and olive oil is very efficacious for children troubled with severe cough. A lady was telling some time ago that her two little ones were perfectly cured in a short time by taking a teaspoonful three times a day, and said, smilingly, "I had no trouble to get them to take it; the honey did the coaxing for me."

A BEE-FRIEND.

BASSWOOD SEEDS; A SUGGESTION IN REGARD TO PLANTING.

I see in GLEANINGS that Bro. Root gave directions about planting basswood seeds. If we follow his directions here in Iowa the seed will stop in the ground two winters. I have had the best luck by planting it in the spring, then it would come up the next spring.

Lamont, Ia., Jan. 14. CHAS. BLACKBURN.

WEIGHT OF 1⅞-IN. SECTION.

I see you want an expression from your readers as to the weight of sections with honey. I use the 1⅞ sections, and in the last three years I find that the weight is from 13½ to 14½ ounces to the section. That would make the average 14 ounces. If a section weighs 14½ ounces it is well filled and of fine appearance.

Eudora, Kan., Dec. 14. LOUIS MOLL.

ADVANTAGE OF FULL SHEETS OF FOUNDATION IN THE SECTIONS.

I used last season brood foundation (as I had some broken) for surplus cases, and they worked well, for I put them in the full size of sections and reaped a good harvest by so doing. Hereafter I intend to use for starters the thin or extra thin, and cut them full size and fasten top and bottom, so as to have them drawn out more perfectly and quicker. J. E. FOWLER.

Newfields, N. H., Dec. 21.

FROM 77 TO 123, AND 3 TONS OF HONEY.

I have 123 colonies in the cellar, and 100 are in dovetailed hives. Had about 3 tons of honey last year, comb and extracted together; about 5000 lbs. comb honey. I commenced the season with 77 colonies, spring count; increased to 123. I have lost but two colonies in my cellar in three years in wintering them. I have a side draft in my cellar all winter, and part of the time it is cold enough so that icicles form on the drip of the cistern. J. L. ROBERTS.

Bridgeport, N. Y.

BEES BUILDING COMBS ON WIRES, A LA BOARDMAN.

I read a letter in GLEANINGS of Mar. 1, from H. R. Boardman, page 160. Two years ago I wired 80 frames as an experiment, and I found that it worked just splendidly. I put a starter in each frame one inch wide, and I have some as perfect combs in those frames as you ever saw. You see, we can not all afford to use full sheets, and I for one don't want to. As an experiment I put one full sheet of foundation in one of those 80 frames, and that same frame was the most out of shape, and had the worst-looking comb in the whole lot.

Panama, N. Y. J. R. CASSELMAN.

[One swallow doesn't make a summer; one frame of foundation proves nothing. Foundation properly wired almost invariably gives good *worker* combs.—ED.]

A COLONY OF BEES IN A STEER'S CARCASS.

The following interesting item appeared in the Galveston *Daily News* of Dec. 19, 1896. It may or may not be true:

BIBLE RECITAL RECALLED.

Waco, Tex , Dec. 18.—Jerry Friend, a hunters' guide and trapper, came down the Brazos River to day in a skiff, part of his load being the carcass of a steer full of honey. The steer appears to have perished from some cause, and dried up in the sun after being hollowed out by mice and insects. The ribs supported the hide in almost life-like size and shape, and the cavity formed a hive for a colony of bees. The combs were fixed to the ribs and the backbone, and were full of excellent honey. Mr. Friend says the mention in the Bible of the bees making their hive in the carcass of a lion attracted his attention more than any other story in the Scriptures, and was recalled when he saw the carcass yielding twenty-two pounds of honey and comb. It was sold as a curiosity to a Philadelphian.

HONEY STATISTICS.

I see you quote California as probably giving the largest yield of honey—see page 42, Jan. 15. I have the *American Agriculturist Almanac* for 1896, page 326, honey product, which reads: Iowa, 6,813,412 lbs.; Illinois, 4,602,941; Missouri, 4,492,178; New York, 4,281,964; California, 3 929-889; Wisconsin, 3,515,761; Texas, 3,286,386. I should have thought that California would head the list, but Iowa does; and you take a Hawkeye, and he does not want the name of his State assailed. According to that table, California comes in fifth. You can secure one of those almanacs by sending to the Orange Judd Co. These figures are for the decade from 1879 to 1889, compiled from census reports.

Albia, Ia., Jan. 23. C. H. CLARK.

[The *American Agriculturist Almanac* probably gets its figures from the government reports, that are very unreliable so far as they relate to the production of honey in the various States. These statistics are gathered from assessors' reports, and are by no means accurate.

A HIVE IN A GREENHOUSE, WITH ENTRANCE OUTSIDE.

Could you tell me if it would hurt bees to be taken from where the hive stood on the ground, and put on the south side of a greenhouse, where the opening of the hive is outside, and communicates with the outside air all the time?

York, Pa., Jan. 11. GEO. H. BUCK.

[The only danger would be that the extra warmth inside the greenhouse would cause the bees to fly out; and, once out, they would chill before they could get back. A better way would be to turn the entrance around to the inside. Some bees will bump themselves to death on the glass; but it is said by florists that they get over this.—ED.]

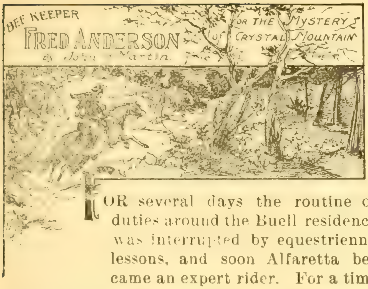
HOUSE-APIARIES.

Dr. C. C. Miller:—In the spring of 1895 my bees nearly all died. I wrote to you, and you answered my questions. I got very little honey this season. I have 50 colonies, I think, in good condition, and I have been thinking of building a house for some of my bees. I should like to get some plans for a cheap house.

Markle, Pa., Jan. 11. F. BAIR.

[As this is of general interest, Dr. Miller sent it to us.—ED.]

A good many have tried house-apiaries, and given them up, while a few still think highly of them. As it is somewhat uncertain whether you would like any thing of the kind after trial, it might be well for you to try it first on a small scale, say a house for 12 or 16 colonies. The simplest kind of building will do—just wide enough for the hives and what space you think you need between them—perhaps 7 feet in all. If 12 colonies are to be housed then make the house long enough for 3 hives; if 16 are to be housed, make the house long enough for 4. The lower tier of hives will stand on the floor, and provision must in some way be made for supporting the second tier of hives above the first. A shelf may do this; and in order to avoid having any thing in the way of the lower hives, this shelf may be supported from above, somewhat after the fashion of a swinging shelf in a cellar. At the entrance of each hive must be cut a hole in the wall of the house, and a passage must be made from this to the entrance so that no bee can get from the hive into the house. After you have tried a small house first, you will know whether you want to build a larger one.



FOR several days the routine of duties around the Buell residence was interrupted by equestrienne lessons, and soon Alfaretta became an expert rider. For a time Prof. Buell would mount old Jake and accompany her; but observing that she managed the pony with good judgment he delegated the honors of attendant upon Gimp, and finally Alfaretta was left to roam the country at her will. Nearly every day herself and the pony were inseparable companions.

Sometimes upon the verdant bluffs she would picket Jack and stroll away to gather flowers; but should she get far away, Jack's whinner would recall her; or she would set up a communication with the pony with a peculiar whinner of her own. This horse language seemed to be understood between the two, and they were very fast friends. The river men, as they plied their trade up and down the winding stream, caught glimpses of the cantering black pony and the fluttering white dress, and she became known to them as the flying maid; and one of the boatmen went so far as to thus name his boat. To landsmen for miles around she was known as the "mad beauty."

The autumn and the winter wore away; the free outdoor exercise developed strength and litheness of body; a ruddy glow painted the cheek; but, to the sorrow of the parents, no relief came to the clouded mind.

Many times when starting out upon her jaunts she would pat the pony's neck and say, "Now, Jack, we must hunt up Fred Anderson to-day." Her trysting-places for that laudable endeavor were at the old McBurger bee-ranch or at a point on the river-bank opposite the former site of the chalk butte and Fred's apiary. For many minutes she would search, peering through the bushes, and calling, "Fred Anderson! ho, Fred! come home — home!" The last word died away with a mournful wail, and with eager gaze and parted lips she listened for an answer. Receiving no reply she would caress the pony's neck, and say, "Fred is far away, but he will come to-morrow."

Prof. Buell continued his moral teachings at the Dawson ranch, and the Sunday-school had flourished in spite of the flood and hard times. In fact, hard times seemed to draw the people closer together for mutual benefit.

Early in the spring months a commodious schoolhouse had been erected not far from the Dawsons, and that was now the center for all moral, educational, and social gatherings; and on Sunday afternoon the school-bell called together a small but wide-awake Sunday-school.

The entire neighborhood had changed for the better, and upon none was this uplifting power more pronounced than upon Mrs. Dawson. The better nature and milder temper of her youthful days returned. The hard lines upon the face disappeared; and while greeting all with a pleasant word and a smile, upon none did she beam with more pleasure than upon Gus Ghering. The latter was evidently fascinated; and as matters progressed he was subject to many bantering jibes from his neighbors; and when he commenced to build an extended addition to his cabin, Matt Hogan took occasion to remark to one of the neighbors that Mr. Ghering was preparing to hive a whole swarm of Dawsons. And no one was surprised a few weeks later when a quiet wedding was announced, and Mrs. Dawson became Mrs. Ghering.

Matt Hogan, having a successful apiary in mind, had taken up a parcel of land about a mile from the river. Thither he had moved his bees and built a cabin, and here he labored and waited for his Biddy Malooney.

Alfaretta took but little interest in the transactions of the neighborhood, and no name would stir her to mental effort like that of Fred Anderson. Then she would arouse to alertness, and insist that she and Jack should search for him. In her efforts to pursue that search she came near crossing the river at the ferry a few miles above her home. Prof. Buell had thereupon instructed the ferrymen not to allow her to cross. Finding opposition to her little plans, she suddenly dropped all mention of Fred's name, and her parents imagined she had entirely forgotten him. But with all people who have a certain degree of insanity there is also considerable cunning; and Alfaretta possessed enough to further her vague plans. In her first futile attempts to find Fred she left the matter of guidance entirely in the hands (or, rather, feet) of pony Jack. Wherever Jack would carry her, there she would find Fred Anderson. Jack's idea of the matter was to follow the course of empire and go west; but the river and the ferrymen were a barrier to the passage of the "mad beauty" and her pony.

Nearly a year had passed since Fred Anderson's departure. One beautiful moonlight evening Alfaretta retired to her room earlier than usual, and to rest, as the parents supposed; and they improved the occasion by making an evening call upon neighbor Jo Splinter, who lived but a short distance from the river. Gimp Dawson was instructed to remain near the house; but the professor, while giving his instructions, listened to Gimp's earnest appeal, and allowed him to go to the bend just above the house, to fish. Gimp was an expert fisherman, and supplied the table with many a dainty morsel from the river.

Gimp for a brief time had one eye upon the house and the other upon his fishing-tackle; but when the fish began to bite he lost all interest in the house, and directed his attention to the fine fish he was taking.

Alfaretta, after a half-hour's rest, came from her room, and, finding the house deserted, became nervously alert, laughing softly to herself. She tiptoed into the pantry, and put a lunch into a little hand-bag. Then, taking the professor's heavy macintosh, she quickly ran to the corral.

Jack met her at the gate, and rubbed against her in an inquiring way, as much as to say, "Where now, my dear?"

"S—h!—s—h! Jack." Then in an undertone, while saddling the pony she crooned her old song; and as she climbed into the saddle she exclaimed, "Now, Jack, it is Fred Anderson we must find—find; away to the hills! on fairy tiptoes, away!"

Jack responded, and struck off up the river at a rapid gallop. The lively staccato of hoofs upon the hard road aroused Gimp from his fishing, and he hastened up the river-bank only to hear the sounds dying away. "Some o' them Spaniards that live up at the cove," he remarked as he proceeded to bait his hook again. "But suthin' tells me tu go over tu the house;" and, suddenly dropping his pole, he said, with emphasis, "I'll go."

He found the house quiet enough; but when he went to the corral and found Jack gone he became greatly excited. "Jimminy crackhorn!" said he; "that gal's clean gone—in the night tu."

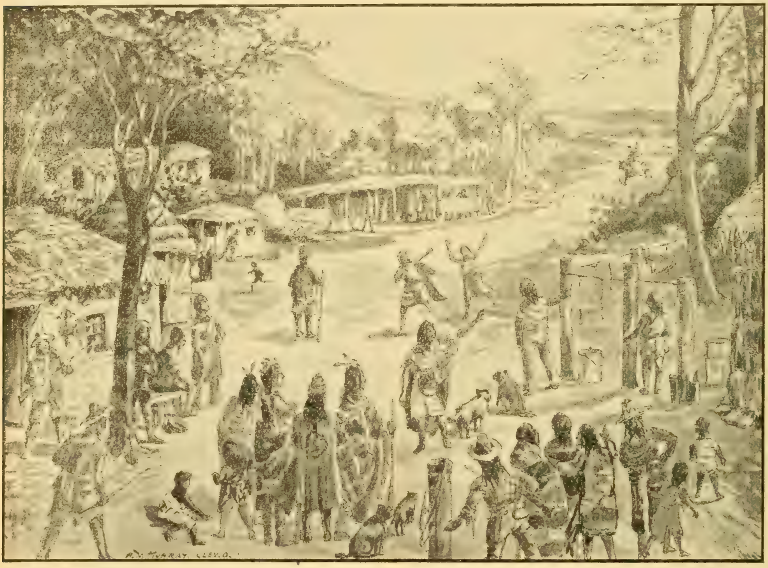
Gimp was a boy of action, and he hastened down to the pasture lot for old Jake, and he was soon ready to follow. Before leaving the house he scrawled upon a piece of paper the following message:

"Alfaretta be gone; so be I gone after her, up river."

This he left tied to the door knob.

Jake was no match for the lively Indian pony, and for every mile Gimp made on his back the pony made two. But Gimp was blindly persistent, and had in mind that Alfaretta would stop to rest the pony by and by, and then he would catch up with her.

At the first ferry, where she had so many times been refused passage, she did not halt; but at the next, ten miles from her home, she allowed the pony to have the bit. She imme-


R. S. MURRAY. CLEV. O.

"THE WHITE SQUAW! THE WHITE SQUAW!"

diately turned down the ferryway, and upon the boat. A man on horseback, and a party in a wagon were also crossing. Alfaretta being enveloped in the macintosh, and it being late in the evening, the ferryman had no suspicions that his boat was bearing the mad beauty across the river until he made his round to collect the fares. "Fare, please," said he to the dark figure upon the pony. For a reply, Alfaretta began to sway her body, and croon, "Rumbles and gumbles, skies clear; gumbles and tumbles, moon fair—fair."

Then turning suddenly in the saddle she bent low, her face almost touching the surprised boatman. "Ha, ha!" she laughed; "see my teeth!"

The latter was said with a hiss and a grimace that gave a chill to the boatman. The front end of the boat was now grating upon the shore gravel. Alfaretta touched the pony with the whip, and she responded by leaping into the shallow water, and jumped to land; and the last the occupants of the boat heard was a weird song from the bluff:

"The night is stormy and dark," etc.

"That mad beauty, by ginger," said the boatman. "Well, I can't help it. If her folks can't keep her in nights, don't know as I am bound to chase around after her. Say, Jim, you are on horseback; spose you follow her up."

"Not much," said Jim; "don't want my nose bit off an' eyes scratched out. She's a witch." And Alfaretta was left to pursue her journey unmolested."

It was, to all appearances, a crazy idea of a crazy person to start out under cover of night to search for Fred Anderson, not having the least idea of his whereabouts: but she had great faith in her imaginary mermaids and the utmost confidence in Jack. The latter was worthy of it, for an Indian pony never forgets its home. In their fishing-excursions to the various streams, and in their annual migrations as hop pickers to the hop-fields of the Sacramento Valley, the Indians and their ponies become familiar with a wide area of country; and this night, after crossing the river, the pony made rapid progress, for every lope was toward its home.

But even horse flesh will tire; and about midnight, Jack, of his own accord, turned into a little arroyo where there was water and grass, and began to browse and drink. Alfaretta, patting the pony's neck, dismounted, removed the saddle, secured the long slender lariat to a bush, and Jack was left to rest and eat, while Alfaretta partook of her lunch, and, wrapped in the heavy macintosh, she crooned her song and kept a fitful vigil over the pony. In the early morning, away pony and maid again hastened. It was about midday when Alfaretta galloped into the little settlement of Covelo, just on the borders of the Indian reservation. The pony halted for a drink at the only watering-place—a tank in front of a saloon.

A stranger in these out-of-the way towns, be it man or woman, is an object of curiosity; and the pony's nose had scarcely touched the water when a long lank individual, dozing in a chair under the generous awning, aroused, unfolded himself, and approached the rider, and proceeded to get acquainted by saying, "How d'y' du, gal? That's a right smart of a pony yer have thar. Mout yer be goin' fur? Ef I can be of sarvice"—but the man was suddenly interrupted by Alfaretta leaning toward him, and, with a grimace, she shouted, "Bum, bum, go-baa-baa!" and concluded by striking him over the head with her light riding-whip. The pony immediately struck off at a gallop, and the discomfited meddler turned to the laughing crowd that had collected, with the angry remark, "By Jericho! ef a man had done that, by Jericho I'd a shot 'im dead; but ef I don't b'lieve she's that ar' crazy gal I've heerd so much about down at Colusa."

"Ha, ha! Jim, that's a good way to turn it off," said a woman in the crowd. "You needn't think you are over in Missury, whar everybody's bizness is your bizness, and your bizness everybody's bizness. This is Californy, whar yer've got ter mind yer own bizness. That gal ain't crazy 'tall. She's one o' them towerists who don't know any better'n to go gallupadin' round the country with a double-barreled spy-glass and a camery a insultin' decent folks. Oh! no, Jim, she ain't crazy onless the hul lot on 'em are."

While the people were discussing Alfaretta's action, the pony was rapidly carrying her into Round Valley. As the pony approached its former home its pace increased. Under the heat of the day, and the exercise, Alfaretta had thrown aside the macintosh, and her fluttering white dress would have made her conspicuous but for the lonely road she traveled. Two hours' riding, and pony and white-robed rider flashed into the broad plaza of the Indian rancheria. The pony gave a loud whinner of joy and recognition of home, and so aroused the entire rancheria. The men awoke from their dozing; the dusky half-clad children scrambled into the wooden wickiups; the squaws, after one glance at the white-robed figure, one and all ran hither and thither in confusion, hair streaming, arms uplifted, hands clasped, and shouting in despair, "Ban-owoya! ban-owoya!" (the white squaw! the white squaw!)

Please allow me to congratulate you on the end-spacing staple which you have already shown us in GLEANINGS. I think it will prove one of the most successful improvements that as yet have been offered to bee-keepers. JAS. PRATT.

Cumminsville, Neb.

By ER Root
Editorial

BEES appear, so far, to have wintered well. Our own are in excellent condition, and the reports from over the country are good.

THIS NUMBER goes to press just too soon to get the result of the vote for officers of the United States Bee-keepers' Union. It will be given in our next.

WE are and have been printing eight extra pages. The large amount of good advertising matter that we are now having makes this necessary in order to give our readers the usual amount of matter.

PROSPECTS for the California apiarists are good. They have had good rains, and that usually means honey. Bees died last season for many bee-keepers who thought they could not afford to feed. Those who did feed will now get their money back with good interest, probably.

TWENTY years ago there were scores of would-be inventors who made a specialty of moth-traps. The Patent Office has issued hundreds of patents on these worthless things. Strangely enough, there are bee-keepers *even to-day*—I do not believe they take any bee-journal—who are wasting their time and money in the same line. Two such chaps wanted to sell their rights to us at fabulous sums. The old saying is true: "The fools are not all dead yet."

TOO MUCH TALK ABOUT "FISHBONE."

Is there not danger that so much talk on the part of bee-keepers regarding fishbone resulting from the use of foundation in sections, will do harm rather than good? Consumers are *now* satisfied; but if we as bee-keepers go to talking now about artificial fishbone we shall begin to create distrust from our customers. Foundation has been used in sections for 20 years or more, and yet the average consumer has never made any fuss about fishbone, because he has not and does not know the difference between foundation comb honey and comb honey in which no foundation has ever been used. When we come right down to it, there is comparatively little fishbone; and as the years go on, I feel confident that manufacturers of foundation will be able to make an article where the fishbone can not be detected by even an expert. I confess I have said a good deal about it in this issue myself, but I hope not in a way that will prejudice the consumer against comb honey, a very large proportion of which is built from full sheets of foundation.

THE editor of the *American Bee Journal*, in referring to new appliances, gives the advice to prove all things, testing on a small scale. If the first acquaintance in a small way proves to be satisfactory, buy more next time. We have several times uttered a similar thought in our columns, but it will bear repetition. A new article that has honest value in it, with proper advertising, is bound to earn its way.

A SHORT time ago friend Bingham expressed himself as believing there were no patents on foundation-mills. Something like a dozen, I believe, have been issued. The most important were from the following-named parties: W. C. Pelham, Mrs. Frances Dunham, E. B. Weed, and last, but not least, the lamented Samuel Wagner. The latter obtained the first patent. For two years his assignee, Mr. Perrine, prevented us from making foundation-mills and foundation, there being two years more life to the patent.

PATENTS ON EXTRACTORS.

SOMETHING like 100 patents have been taken out on honey-extractors, in the United States—at least, we have on file in our office that number. It seems now as if no patent that might be issued would be worth any thing to the inventor.

By the way, certain parties are representing that our four and six frame Cowan reversible extractors are an infringement upon a recent patent. The vital features of our Cowan extractors are 15 and 25 years old—at least, we can show printed matter showing where such principles were in use at that time.

THE "DON'T PAYS."

THE editor of the *American Bee-keeper*, referring to a certain class of people who run in debt and don't pay, says:

> One of the meanest things that any one can do is to buy goods of a firm on credit, and when he has reached that point where he will be trusted no longer, to put off paying his account, and buy goods for cash elsewhere. This sort of thing is done to a considerable extent even among bee-keepers, and we have in preparation a list of some who have served us in this way.

It is indeed true that "this sort of thing is done to a considerable extent." If the W. T. Falconer Co. will send us a list of their "don't pays" we will return the compliment by sending them a list of ours. By the way, it would do no harm if manufacturers and dealers would exchange lists.

BEES BUILDING NATURAL COMB ON WIRES.

ON page 160 Mr. H. R. Boardman gave an item regarding bees building combs on wires without the use of foundation. Since that time quite a number have written that they have tried the plan, and that it works very successfully. A few days ago Mr. Boardman sent us a frame that had been wired perpendicularly.

It was interesting to note how the bees seemed to follow down the wires (without foundation) with their fins and patches of comb. To secure this result, the wires were first coated with wax.

It will be remembered that, in natural-comb building, bees following the comb-guide will build down several patches of comb more or less pear shaped. These different patches, as they enlarge, finally unite, and at the point of juncture there are necessarily irregular cells—many of them drone-cells. For our use we should greatly prefer full sheets of light brood foundation on wires, and then every cell is uniform, leaving little chance for the rearing of drones.

FAIR CRITICISMS AND SLURS.

REFERRING to foundation made without any side wall, as mentioned in another column, the machine for making which we made, Mr. T. F. Bingham says:

> A machine that will do such work is a great credit to the maker of it. Figs do not *grow* on thistles. The man or firm of men using capital and talent in development of enterprises that are for the good of all and the injury of none should be recognized without a battle. T. F. BINGHAM.
>
> Farwell, Mich.

This is as generous as it is kind; for it must be remembered that Mr. Bingham differed with us in regard to the policy of putting out the new drawn foundation. But such a spirit as is manifested above will readily yield, if wrong to, reason and to the developments of the future. Almost the same sentiment has been put forth by Mr. Hutchinson, who thinks or did think as Mr. B. Such sentiments stand out in marked contrast to the uncalled-for statements in the *Progressive Bee-keeper*. We are willing to meet fair criticisms, but prefer to ignore, as a rule, any thing else.

CALIFORNIA HONEY-ADULTERATION LAW.

A LAW, a good stiff one, has recently been enacted in California, to prohibit the adulteration of honey. It is very specific, defining the meaning of extracted honey, and what shall be construed as adulteration. It would be a good one for other States not now in possession of such a law. Here is the text:

> SECTION 1. No person shall, within this State, manufacture for sale, offer for sale, or sell any extracted honey which is adulterated by the admixture therewith of either refined or commercial glucose, or any other substance or substances, article or articles, which may in any manner affect the purity of the honey.
>
> SECTION 2. Every person manufacturing, exposing, or offering for sale, or delivering to a purchaser, any extracted honey, shall furnish to any person interested, or demanding the same, who shall apply to him for the purpose, and tender him the value of the same, a sample sufficient for the analysis of any such extracted honey which is in his possession.
>
> SECTION 3. For the purposes of this Act, "extracted honey" is the transformed nectar of flowers, which nectar is gathered by the bee from natural sources and is extracted from the comb after it has been stored by the bee.
>
> SECTION 4. Whoever violates any of the provisions of this Act is guilty of a misdemeanor, and upon conviction thereof shall be fined not less than twenty-five nor more than four hundred dollars, or imprisoned in the county jail not less than twenty-five days nor more than six months, or both such fine and imprisonment. And any person found guilty of manufacturing, offering for sale, or selling any adulterated honey under the provisions of this Act, may, in the discretion of the court, be adjudged to pay, in addition to the penalties hereinbefore provided for, all necessary costs and expenses, not to exceed fifty dollars, incurred in analyzing such adulterated honey, of which such person may have been found guilty of manufacturing, selling, or offering for sale.
>
> SECTION 5. This act shall be in force and take effect from and after its passage.

SELLING THE NAMES OF BEE-KEEPERS A BAD POLICY.

THE selling of the names of bee-keepers, I firmly believe, is bad policy, and decidedly detrimental to bee-keepers. We once sold the names of catalog applicants; but we discontinued the practice years ago. Since Bro. Hutchinson has begun selling his list of names I notice that several snide commission houses have got hold of them, and are sending out their circulars, and, of course, some bee-keepers bite, and get badly bitten in return. It is truly astonishing to note the number of fake commission houses that have started up in the last year or so, and they all seem to make a specialty of honey. The first thing they try to do is to secure a list of bee-keepers. They get in all the honey they can, sell it, and perhaps skip the country, the same as Wheadon did. There are several other mushroom concerns that probably contemplate the same tactics. If they could not secure the names of bee-keepers for love nor money, they probably could not bait their suckers so easily. There is no harm in selling names to reliable well-known bee-keepers, but I believe it would be wise for Mr. Hutchinson not to sell to outsiders.

The readers of bee-journals, I believe, are not very often caught; for I have before me the names of two bee-keepers who are not subscribers to our paper, and I should judge they do not take any paper devoted to bees. They have shipped their honey, large lots of it, to these people. On referring the names of the parties to us we can not find that they are even mentioned in Dun or Bradstreet. One party we had Dun hunt up. He finally found him in New York, after considerable search. His record is crooked, and, after getting in debt in one town, he goes to another, and now he is operating in New York.

It takes almost no capital, you know, to go into the commission business. A few dollars will pay for the rent of a room or two, a few dollars more for stationery with a high-sounding name, plenty of cheek, and just enough knowledge of law to evade it. On this basis some rascals do a thriving business. We have said so much about crooked ways that I am afraid it will get to be an old chestnut; but it seems very necessary to *keep harping*, for occasionally a subscriber to a bee-paper is caught.

A FEW MORE FACTS ABOUT THE FLAT-BOTTOM DRAWN FOUNDATION.

A GOOD deal of theorizing and useless speculation is now being indulged in with regard to the new drawn foundation, or what we have been calling deep-cell-wall foundation—speculation as to what it will be and will do—not what it *is* or *has* done. Theory amounts to nothing when set over against fact; and for the purpose of enforcing some of our former statements, and disproving some of the various opinions recently set forth, we have called into requisition the camera. There is nothing more truthful than a photographic negative; and, thanks to the new process of half tone engraving, a photo can be reproduced in all its faithfulness for the benefit of the general public.

Mr. Weed has taken various samples of comb foundation, of natural comb, of comb drawn from *ordinary* foundation, and of his new drawn foundation, and placed them in plaster casts. It is impossible to get a cross-section of a piece of comb or foundation without causing a burr edge; but by placing them in plaster, and then taking a cross-section of the whole, a *clean-cut* sectional view is secured. The accompanying engraving shows several chunks of plaster through which a cross-section has been made. These chunks are held together by means of black dental wax to secure better contrasts in the photo.

No. 1 shows a piece of comb drawn from light brood foundation. No. 2 shows the foundation itself before the bees have touched it. No. 4 is a view of extra-thin foundation also untouched; 3 is natural *drone* comb built by the bees *without* the aid of foundation. No. 5 shows the new drawn foundation; No. 6 the cast comb, made by Otto Schulz, of Germany.

We have made the statement that bees will thin down the *walls* of foundation to a natural thickness, but seldom if ever touch the *base.* That statement is abundantly proven by a comparison of Figs. 1 and 2. It should be said, however, that the sectional view of foundation at 2 is not taken at the same sectional line as at 1. A little more slicing off would have shown the base the same thickness at No. 1. Now, then, if the base at 1 in the original foundation had been thin, and plenty of wax in the walls, we should have had a comb without a midrib. It is apparent, then, that in light brood foundation a very perceptible midrib is left; and even in extra thin, as at 4, there will be some midrib.

Nos. 1 and 2 are only duplicates of dozens of other samples we have taken. If, then, 1 and 2 are fair samples, as indeed they are, it goes to show that what we at present need is *thinner* bases and *more* wall. The results of R. L. Taylor's experiments along these lines, as reported in the *Bee-keepers' Review*, are quite in harmony with what I have just said, and with the photographic view, and Mr. Hutchinson appears to have overlooked or forgotten this, for he seems to favor a foundation all base and no wall. If it is all base, and the base could be made as thin as natural, it would sag in drawing out; and, besides, I think the bees would be very much inclined to gnaw it down.

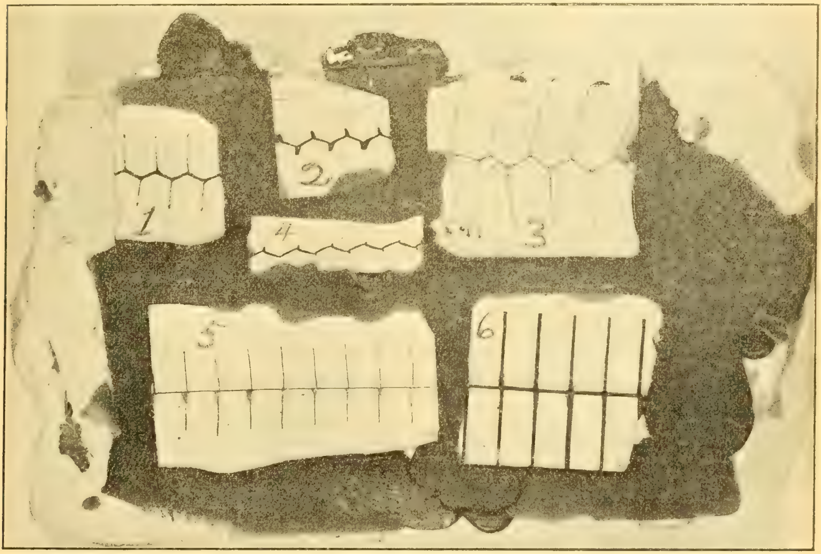
Very recently Mr. Hutchinson, Mr. Bingham, and a few others, have been asking for a foundation without wall. Accordingly, in a roundabout way we received an order for a mill that would make the mere midrib but *not the walls.* We had but little faith that such an article would be of any use; but we made the mill, and secured some beautiful results. This mill was shipped to our customer. Later on it was a little amusing to have samples of this same mill sent back to us as the triumph of a new achievement.

If one will look over the photo very carefully he will see that it is not the *absence* of walls, but the *presence* of them, that is needed. In a word, thin bases, with plenty of wall, is the desideratum. Mr. Weed realized this fact years ago, and now because, forsooth, he proposes to put the surplus of wax in a deeper wall (instead of a thicker one) and make thinner bases, Mr. Leahy hints that we are in league with the adulterators—that we are about to ruin the comb-honey business. None are so blind as those who won't see.

No. 5 is a sample of the new drawn foundation, the walls of which are considerably deeper than would be practicable or desirable for us to make. It will be observed that the base appears to be as thin as natural; but it is in fact a little thicker. The sample in question was made on a smaller machine, with which it was not possible to secure as perfect results as with the larger one which is now nearly completed. Let it be understood that 5 has not been touched by the bees in any manner whatever. It is just as it left the dies. The product from the new machine will have cell walls probably about $\frac{3}{16}$ inch deep; or, in other words, it will be deep-cell flat-bottom foundation. We might make deeper walls, but there is no advantage in it, and the probabilities are that the new foundation with walls $\frac{1}{8}$ inch deep will be deep enough. It will readily be seen that there is not the least danger that this article—a flat-bottom foundation—will be put into tumblers of glucose and be used to defraud the gullible public.

While we may be condemned by a few, for the present, we have perfect confidence that the future will fully vindicate us. While we do not even now claim that we shall be able to make the article a commercial possibility, we do assert that, if we ever shall do so, there will be no fraud about it. There is only one way the product can be made, and that will be covered by patents that will prevent dishonest persons, even if they could, from making a fraudulent use of it.

I have said that the cell walls of No. 5 are $\frac{8}{1000}$ inch thick; that those of the natural *worker* combs are $\frac{3}{1000}$, or the same as the walls in No. 1. Now, then, if the walls of 5 are thinned down to $\frac{3}{1000}$, will there be more "gob" in the mouth of comb built from it, than from natural *drone* comb as shown at 4? As I have already shown, 4 has a much heavier base, and the "gob," if present at all, will be more apparent in 4 than in 5, for the naked eye easily perceives the difference. Much has been said of late in favor of natural bee-comb; that it is more eatable, and has less fishbone, etc. As a general rule, if bees are left to themselves without foundation during the honey-flow they will build *drone* comb; and careful measurements show that both the walls and the bases are much heavier than those of worker. In fact, there is as much "fishbone" in such comb, probably, as in *worker* comb made from extra-thin foundation; but in the new drawn foundation it is proposed to have the base *thinner* than the bees make it in drone comb without foundation; and I leave to our readers to judge whether there will be more "gob" or fishbone in comb made from samples like 5, having cell walls about $\frac{3}{16}$ inch deep, and thinned down by the bees, than in samples like 3.



CROSS-SECTION OF COMB AND COMB FOUNDATION BEFORE AND AFTER WORKED BY THE BEES.

It should be stated in connection with 5, that in the corners of the cells the plaster flaked off a little; and the consequence is, the wall appears to be a little heavier at the point where it unites with the base in some of the cells.

We have reproduced 6 because it is an interesting curiosity. That the bees will accept it, there can be no question; that they will thin the walls down to regulation thickness is probable; but, oh dear me! who pays for the waste wax that is taken off from these walls? or do the bees utilize it in some mysterious way? No. 6 would be very much better if the walls were $\frac{1}{8}$ or $\frac{3}{16}$ inch deep. It would then be much like our old deep cell-wall foundation that we have made on roller mills for years to supply our German friends. It may not be generally known, but it is a fact that we have made foundation with heavy walls, and deep enough to make the foundation in the aggregate about $\frac{1}{4}$ inch thick; but, unavoidably, there was a very heavy base.

Later.—A few moments ago Mr. Weed brought up a comb covered with bees, in the center of which, 18 hours before, he cut out a square hole, and inserted a piece of foundation and a piece of the new drawn foundation. The bees immediately began to tear down the former and to build the latter out beautifully, thinning down the walls at the same time. Remember, this was in the month of March, without feeding. What would be the results in a honey-flow in June?

NOTES OF TRAVEL
BY A. I. ROOT.

MONTEZUMA'S CASTLE.

Some ten or twelve miles from Camp Verde there is an aggregation of cliff dwellings containing one central block of dwellings, so extensive that it has been named Montezuma's Castle. We started out one morning to explore it; and when several miles away we caught a glimpse of the cliff, and had a fair view of the castle. When within perhaps half a mile of the place—and it didn't really seem to be half a mile—from a little eminence we had a very good view of it. It was just over a little hill that lay before us. Our road went around the hill instead of going over it. Mr. Elvey, who had been there before, felt pretty sure we could make a shorter cut by striking off across the desert, and so we ventured to try it, although he and Mr. Carey both had told me several times I had better not undertake going "crosslots" on my wheel where the road seemed unnecessarily circuitous. You ought to have seen the open-mouthed astonishment depicted on our countenances when we got over said hill, to find there was a cliff, sure enough, but no castle nor cliff dwellings in sight. Where had they gone? There was still another hill before us, and it seemed quite probable they were over this hill. So we started again "crosslots" through the brush and desert herbage. Before we knew it we came to the brink of a very steep bank—too steep for any horse and wagon. Then we spent some time going up and down to see if we could not find a place to cross. I made my wheel do service in this respect. After considerable trouble in clearing away a place for the horses we forded the creek and got up on the opposite bank and into the traveled road. Moral—beware how you leave the beaten track, especially in a strange land. If we had kept the road the horses could have trotted around to the place it had taken us toward two hours to reach by our short (?) cut.

Before we explored the castle, Bro. Elvey had to cut a bee-tree where he saw bees going in and out of a knot-hole several months before. As neither bees nor honey appeared when he got into the hollow, we bantered him considerably about imagining he saw bees going into the hole when it was probably nothing more than mosquitoes buzzing around. Finally, however, he reached his hand in and pulled out a sheet of dry honey comb This restored his reputation for veracity. It seems that bees do starve out, even in a country where blossoms of some kind are to be found almost every day in the year.

I tried hard to get a picture of this castle, but did not succeed. The cliff is about 200 feet high, the top projecting over so as to shield the castle pretty well from the weather. As one looks at the work away up under this overhanging cliff, he is again reminded of the swallows' nests under the eaves of the barn. The castle is five stories high. There are perhaps twenty or thirty rooms in it. The lowest one is at least 75 feet above the stream below. Just as we were getting ready to explore, our good friend Rev. Mr. Healy joined us. Three of us managed to creep up the sides of the rock by means of a rude ladder; but Mr. Healy, who is a rather heavy man to climb, discovered an easier way by starting quite a distance away and walking along a projecting ledge.

The structure was evidently added to at different times. The front wall runs straight up, and the only thing to indicate where the different floors are located are the projecting ends of the timbers that support the floor. These sticks of timber were probably cut off with stone axes, or burned in two with fire, to judge from the projecting ends. Round poles not unlike what we use for bean-poles are laid across these sills, and across the poles are spread wild rushes, and over the rushes a layer of earth. One is impressed again by the fact that these people must have been small or else their rude floors would have broken through; for with the weight of a heavy man they spring down in a way that makes it seem dangerous. I was the only one in the party, in fact, that crawled up to the very highest loft. There are no stairways, and these people evidently carried ladders to climb up from one story to another. Some of the stories are so low that a tall, active boy could get up through the hole in the floor from one story to another without the aid of a ladder. The uppermost room is the finest of all. Back under the overhanging cliff is a sort of cave. This cave is so much larger than the average cliff dwellings that I imagine it might have been used as a sort of council-chamber. This cave is walled in, like the rest, but outside of the wall there is a sort of porch or veranda running to the right and the left, each way, perhaps twenty or thirty feet. On the extreme edge of the porch the walls of the castle below rise up so as to form a sort of parapet about waist-high. Here one can stand and look over the valley below. In case of a siege this would have been an excellent place to cast rocks down 150 feet or more on the heads of the enemy. The features of the separate rooms in the castle are so much like the cliff dwellings already described that I need not mention them here.

We found great quantities of corncobs, such as I have before described, and Mr. Elvey found a shell that was, without doubt, from some sort of squash. In fact, it looked very much like the hard shell on the outside of a Hubbard squash. In an article that appeared a few months ago in *Harper's Monthly*, I am told they have actually found grains of corn and other seeds in these cliff dwellings. Why don't some of our enterprising (?) seedsmen advertise varieties of corn or vegetables, the seed of which was obtained from the cliff dwellings—that is, if it is a possible thing to make garden seeds of any sort grow after they are toward a thousand years old? Fragments of pottery quaintly ornamented, both inside and out, are found everywhere. These people must have had muscle and energy or else they never would have consented to live where they had to climb these cliffs every day when they went home to dinner. It seems a little strange that no such thing as a chimney was ever invented, for the smoky ceiling and rafters indicate that fire for cooking or to get warm by was built on the earthen floor, and the smoke got out as best it could. After the ceiling got smoked over so as to make the room dark and sooty they had a plan of mixing up a sort of whitewash made of the limestone rocks all about them, and whitewashing the room very nice and clean. This thing has been gone over so many times that some of the rocky ceilings contain ten or twelve different coats of whitewash and soot alternating. Strangely enough, the rooms smell of the soot and smoke even yet, although hundreds of years have probably elapsed since any fire was built there.

In this vicinity several mummies have been lately discovered, as I have mentioned before. My companions, who were all heavy men, declined going up into the battlement I have described, because the masonry has already in several places broken away from the rocky cliff so as to leave considerable fissures; and many times even my weight made the structure rock as though it might soon all tumble down into the valley below.

OUR HOMES.

Be not conformed to this world; but be ye transformed by the renewing of your mind, that ye may prove what is that good and acceptable and perfect will of God.—ROM. 12:2.

There are a good many things that are wrong in this world; and it puzzles a Christian a good many times to know just what he ought to do under certain circumstances in regard to these matters. Sometimes these wrongs that come up before us appear so great that righteous indignation seems appropriate. As I grow older, however, I find it an excellent plan, when I feel like condemning others, and condemning the world, to wait a little and inquire carefully of myself whether I myself may not be more or less to blame for the existing order and condition of things; and such examinations do me good. Sometimes the searching power of the Holy Spirit reveals so much that is bad in my own life I feel almost as David might have felt when Nathan said to him, "Thou art the man." It is an easy matter to recite and relate the iniquities that are going on round about us. It becomes *exceedingly* easy, in fact, nowadays, to raise our hands in holy indignation (if that is not too strong a term) when we hear of the tremendous salaries that some of our public officials are getting; and I do myself certainly think it is not only too bad but a burning shame that farmers who are getting such very low prices for their produce should be taxed just as they have always been in order that county, State, and government officials may have these great salaries and live in such style. It certainly is wrong; but who is to blame for it?

Now, dear friends, I think it will do us all good, and, furthermore, it will help us to remedy the matter when we begin to search our own hearts, and see if we, at least a great many of us, are not more or less to blame. A few weeks ago there was talk about enlarging and improving our Statehouse at Columbus, to the extent of something like a million of dollars. Our sensible governor, however, vetoed the measure. I remembered that some one said through the papers, that, in order to make these improvements, they would have to tear up and destroy a lot of sawed-flagging walks that had only just been put down at an expense of many thousands of dollars.

Now, dear friends, our beloved State of Ohio is not the only one in the Union that is thinking about such pieces of extravagance. When I was in the city of Albany, some years ago, at a bee-keepers' convention, my attention was called to some beautiful and expensive carving in the Statehouse, but it was put in some dark out-of-the-way corners where nobody could see it, and probably had scarcely been noticed since the work was executed. Those having the matter in charge made an excuse for their extravagance by saying they did it to furnish needy people employment. To state it more plainly, the great State of New York taxed her hard-working farmers in order to get money for expensive decoration; and after said decoration was done, they admitted that it was of no use to anybody, but they did it to furnish somebody *work*.

It is not only the fashion now, but it has been a fashion for quite a few years back, to make appropriations running away up into the millions, for doing something or other that is only, when you come right down it, "tomfoolery." I know of no other word that expresses it more briefly.

When I was in New Orleans friend Winder took me through the great postoffice building, which was completed a good many years ago; but there were vast rooms, expensively decorated, that had never been used at all. They were beautifully lighted, and warmed by steam. In fact, they were too warm for comfort. I do not know exactly whose money paid for making great massive rooms that nobody needs; but Uncle Samuel had to foot the bill, or is footing it in some shape or other. A good deal of it seems to be owing to stupidity and bad management.

Now, I think I had better stop right here before I give many more such illustrations, or our good friends may get the idea that A. I. Root is not a true and loyal patriot. What shall we do about it? Commence a reform at home. Almost every large business establishment makes more or less blunders, and throws away more or less money in like tomfoolery. Even when they are hard up, and paying heavy interest, they often do this. I once heard of a railroad engineer who expended thousands of dollars in preparing for laying a track through the hills of Southern Ohio. The company that employed him, however, became so well satisfied that he lacked in judgment they turned him off and got another engineer. The new man selected a better route, and built the road for less money than his predecessor had used in getting his plan half done. This was a fearful example of lack of judgment or lack of fitness for his calling. In our establishment I could take you down into some of the unused basements, and find machinery that cost a good many dollars, which was discarded almost before it was ever used at all. I can not well blame anybody just now, for it was A. I. Root himself who decided on making the purchase.

Years ago I happened to step into the back room of a wholesale jewelry establishment. I saw there a beautiful clock worth a good many dollars, lying in the rubbish-heap. The decorated glass front was broken in shipment, and it was tumbled with other like damaged stuff back into the corner, covered with dust and cobwebs. This jeweler failed in business a few years afterward, paying only a small per cent.

Now, it is not only our government, and it is not only at the capitol of our several States where these things are going on. The great railroad companies are not the only ones who make blunders; neither is it the manufacturers nor the wholesale dealers who alone waste their hard earnings. When I happen to get a chance look into the empty corncribs of some of my farmer friends I find things that have cost a good deal of hard-earned money out of repair, and stored away out of sight. They are not always "out of sight," however, for sometimes nice and beautiful agricultural machinery is left right out in sight, and out in the rain and snow all winter long. You all know more or less about this. And can we blame the government of the United States for doing what many of her people do? Yes, and the very men and women who let high-priced tools stay out in the weather, run in debt for *more* high-priced things to keep in fashion.

And now I am getting around to the point of my text, somewhat. I do not mean to say we should make no effort at all to dress like other people, and to furnish our houses like other people; but I do say that it is my honest belief that a great part of our troubles are caused by our trying so hard to conform to the "fashion of this world" when we honestly can not afford it. I have not (as yet) purchased or worn a pair of toothpick-toed boots or shoes. I do not believe it would be best for me to say emphatically that I am *never* going to wear them; but I have been thinking pretty strongly that I should never conform to this extreme fashion in foot-gear—I mean the kind where they run away out to a point so sharp that they may well suggest the idea of toothpicks. It always makes me think of the caricatures where the prince of darkness is pictured with exceedingly long and pointed toe and heel; and I am really *afraid*, fathers and mothers, and boys and girls, that the evil one has may be a little to do with these sharp-toed boots and shoes. When we were discussing the matter the other morning at breakfast, somebody said that *everybody* who tried to be well dressed had bowed down and accepted the new fashion. When our good pastor the other Sunday morning, however, was speaking, I happened to look down to his neatly dressed feet, and felt glad to see him wear square-toed boots like my own, and I am quite sure nobody in Medina would think of calling him in *any* respect old-fashioned.

In a certain household I heard them talk about discarding a beautiful oval-top extension dining-table. It was made of the finest wood, and showed the very nicest workmanship; and the careful housewife had kept it so it was almost as handsome and perfect as when it first left the cabinet-maker's store. I remember of thinking, when the fashion came in for cutting off the sharp round corners of our dining-tables, that it was really a humane improvement. Not many years ago a child was killed by running against the sharp corner of a table. The oval tables are so much prettier, and more convenient (so it seems to me), that I did not think they would ever be discarded; but I am told now everybody is getting rid of them, no matter how good a table and how much it cost. Square tables are all the fashion, and we must be up with the fashion or we can not sleep. A few days ago a good friend of mine said something like this:

"Mr. Root, there are a lot of people in our town who live and think of nothing but keeping up with the city fashions, or, at least, getting as near to the city style as they possibly can, and these very people *can not afford it*."

A great many times the people who can not afford it, or who ought *not* to afford it, are discarding old things that are good and serviceable because the style is changed. I thought once I would say something about women's dresses and the big sleeves; but I might make a blunder if I should undertake to do so. I think I heard somebody say the cloth in some of the big sleeves would make a very pretty dress for a little girl; but may be the statement was an exaggeration. Just one more point:

I am pained many times nowadays by seeing children supplied with so many nice toys at such low prices. You may smile at this, for The A. I. Root Co. has dealt in toys quite a little, and the catalogs have perhaps urged the people to buy them. Well, I have felt bad sometimes to read our own catalogs—not that there is any thing in them that is positively bad, perhaps, but they have reminded me of the time when my good father used to whittle out (for quite a family) our sleds and wagons winter evenings. Oh how we did used to enjoy seeing him cut things out of pine, and build beautiful structures with that sharp knife of his in just one long winter evening! We boys coveted that sharp knife and the soft pine wood he whittled so beautifully! Why, even the coiled-up shavings that he made were handsome, and we boys tried *hard* to whittle out something as nice as the one that "pa made." My older brother became very expert in this work. I remember his making about the handsomest sled I ever saw, out of some hard seasoned ash. Fifty years ago the *ingenuity* of the boys and girls was called forth in the effort to make their own things; but now we get them ready made by machinery for only a nickel. They cost so little that, if a toy gets out of order, it is thrown into the back yard, or stored away in the corncrib I have been speaking of. No one tries to mend it, as it costs so little; and even the farmers who sell their corn at 10 and 15 cts. a bushel must supply nickels for toys, or rides on electric cars, or for the "slot-machines," and for all else that is going on, or else they will not be "in fashion." I have heard statements at our farmers' institutes to the effect that the farmer is entitled to the best of every thing in the land; he should have as many books and papers, and as nice a parlor, as the banker and storekeeper in the town. Had the speaker added, "If he can *afford* it," I do no not know but I should have said all right. But the idea that some agricultural papers have advanced, or the *way* the idea was advanced, that the farmer is entitled to these things, even if it requires a mortgage on his farm, it seems to me is a terrible error.

Now dear friends, I fear that we are all more or less guilty. I am afraid that we who live in the country, and raise garden-stuff for a living, are somewhat to blame for the extravagant appropriations that are being made at our statehouses or court-houses in order that we may get even with our rivals in other States or counties in fine buildings. Progress and improvement are good things. But there are thousands of other things vastly more important just now than having toothpick-toed shoes and other things to match because they are the fashion. I do not believe these things bring real happiness; and I know from experience that I feel happier and better when I rescue implements from want of care, than I do when I go and buy new things because it is less trouble than to go and fix up the old ones. *Christ Jesus* should come before fashion or any thing else that this world has to offer. Better, a thousand times better, be *out of fashion* than to be without the love of the Savior in our hearts.

THE DISGRACE OF THE CENTURY.

All over the land there has been a lamentation that our penitentiaries have to be built larger. Good people are also feeling sad that our prisons are mostly filled with American *boys;* and, at the same time, at least one State of the Union seems to think it a fine thing to encourage and develop the mania for prize-fighting. I did not intend to mention the matter at all in these pages, for many times it seems to be true that "the least said the soonest mended." As the fight is over, we might let it drop; but science has been called in to perpetuate and keep it up by degrading that beautiful new invention of Edison's to the level of making it reproduce the hideous spectacle of one human being pounding another to jelly amid the cheers of a crowd of spectators. The W. C. T. U. has, however, happily wakened, and is demanding, not only of the President of the United States, but of the governors of the various States, that the kinetoscope shall not be paraded through the streets of our cities and villages to educate our children toward vice, as if they could not learn it fast enough through the ordinary channels. God be praised for the energetic measures started by the W. C. T. U.; and may all good people fall in line and second their efforts, whether the governors listen to our prayers or not. Keep the children away from the thing, as you would keep them out of a drunken row. I rejoice to know that Archbishop Ireland, in St. Paul, Minn., has vigorously indorsed the movement to suppress the kinetoscope shows.

I can not help thinking of a little verse my mother taught me in my infancy:

Let dogs delight to bark and bite,
For God hath made them so;
Let bears and lions growl and fight,
For 'tis their nature too.

But boys and girls should never let
Their angry passions rise;
Your little hands were never made
To tear each other's eyes.

And these little verses remind me that our humane society, of the present age, with its efficient laws, does not always let even *dogs* bark and bite, and chicken-fights have been justly ruled out. What inconsistency to permit *men* to do so, and encourage crowds to witness the shameful scene! Can't our veteran friend Henry Berg lend a hand just in this crisis? If he is gone, where has his mantle fallen?

MORE ABOUT CIGARETTES.

The following clipping has been sent in:

There is scarcely a high school, academy, or college in the land where students are not dropping out of their classes, and failing to graduate, from cigarette (physical and mental) disintegration. Their names are legion, and they are pouring into the lunatic-asylums of all these lands, and committing suicide every hour of the day.

THE WORK OF THE ANTI-SALOON LEAGUE.

We clip the following from a Cleveland daily:

LEIPSIC, O., March 23.—The town council last evening passed, upon the third reading, the screen ordinance by a unanimous vote of those present, it thereby becoming a law. The saloon-keepers are loud in their denouncement of the members of the Anti-saloon League. The ordinance virtually means the killing of the saloon business in this town.

It may be necessary to explain to some of our readers that the above alludes to the screens placed in front of the windows of every saloon; and I suppose it is true that the saloon-keeper's business *would* be ruined by letting God's daylight shine in upon him and his customers.

HIGH PRESSURE GARDENING

THE GOVERNMENT DISTRIBUTION OF FREE SEEDS.

With the stir that is being made in this matter it looks as if this blundering waste of the people's money would soon be abated. It has been pronounced a humbug and swindle again and again, and Secretary Morton certainly did all in his power to have it stopped; but, notwithstanding, a million of dollars or more is to be fooled away again this present season. Farmers are taxed to support this stupendous fraud, and then in return *some of them* get bundles of seeds they did not order and did not want. So far as I can find, nobody is in favor of it except public officials who want the seeds to give away in order that they may make friends among their immediate constituents. Of course, there has been a reform in purchasing the seeds of prominent seedsmen; but even the seedsmen who receive the government contract condemn the principle openly through our periodicals.

THE OHIO EXPERIMENT-STATION REPORT ON POTATOES FOR 1896.

Bulletin No. 76, devoted entirely to potatoes, is of more than usual interest and value. Prof. W. J. Green seems to have a faculty of making every thing exceedingly plain that they have learned by their numerous tests. After reading every word of the bulletin I turned back and read many passages over and over. The summary is especially helpful. In fact, I have deemed it worthy of a place in our pages as below.

SUMMARY OF EXPERIMENTS WITH POTATOES AT THE OHIO EXPERIMENT STATION.

Changing seed potatoes for the purpose of securing those grown on a different soil may be advantageous, and it may not. More depends upon the selection and keeping of seed than changing from one soil to another.

Changing for the purpose of securing an improved variety is also uncertain as to results. "New blood" does not necessarily indicate an improvement, for as a matter of fact many of the new varieties are inferior to the old.

Keeping seed potatoes so as to preserve their vitality is of the utmost importance. This can be done fairly well by pitting; but cold-storage, when the temperature is held at about 35 degrees Fah., is the ideal method.

Cold-storage potatoes make a quick, vigorous growth, and give a perfect stand in the field.

A storage room for potatoes need not necessarily be cooled with ice, as ventilation answers very well; but with ice the temperature may be controlled at all seasons.

A good crop of potatoes may be secured if planting is delayed until the first of July, providing the seed is kept properly.

As between budding or sprouting the seed in the light, and cold-storage, there is but little choice.

Budding is accomplished by spreading the potatoes, one layer deep, on the barn floor, on a loft, or in shallow boxes, where they get light, but are not exposed to direct sunlight. This is done several weeks before the time of planting.

Potatoes treated in this manner come up in about one week, and grow with astonishing rapidity. Cold-storage potatoes are a few days later in coming up, but mature at the same time.

Contrary to expectations, the best results have been secured in using medium and late varieties for late planting.

Usually, as large a crop is not secured by late as by early planting; but the advantages lie in being able to follow early crops in this manner, and in securing better seed, because of the superior keeping qualities of late grown potatoes.

It has been found advantageous to immerse seed potatoes not more than an hour in the corrosive-sublimate solution, in the treatment to prevent potato scab.

Seed potatoes, grown from treated seed, and planted on land free from scab, may produce tubers almost free from scab.

The treatment for potato scab does little or no good if the potatoes are planted on land infested with scab.

It is a good plan to treat seed potatoes some time before planting, and to dry before storing.

Spraying to prevent potato blight has given variable results, possibly because the same forms of blight have not been present at all times.

Potatoes appearing to be sound, but showing a dark ring when cut across the stem end, are diseased, and will carry the blight to the field. The Colorado potato-beetle, blister and flea beetles, may carry the disease from one hill to another.

It is essential to reject diseased tubers, to keep the "bugs" in check, and to plant on ground where

> potatoes have not been grown for a year or two. In spraying, six ounces of Paris green should be used to a barrel of Bordeaux mixture
>
> Thorough cultivation is important, so as to prevent the waste of moisture, and to keep up a vigorous growth, as a means of rendering the plants somewhat resistant to blight.
>
> The most promising of the new early varieties are, Burr's No. 1, Bovee, Early Michigan, Early Thoroughbred, and VanOrman's No. 99.
>
> The most promising of the new late varieties are, Carman No. 3, Country Gentleman, Enormous, Flagle, Livingston, Table King, Uncle Sam, and Wise. White Early Ohio, Pride of the South, and White Bliss' Triumph are valuable for certain sections and for special purposes, but not for general cultivation.
>
> American Wonder, Carman Nos. 1 and 3, Early Norther, Early Harvest, Rural New-Yorker No. 2, Sir William, and Wise, have been tested sufficiently to warrant recommending them for general cultivation.
>
> Superphosphate has increased the potato crop, in our experiments, to a profitable extent, the cost per bushel of increase being five to six cents.
>
> There does not appear to be much difference in the efficiency of dissolved bone black and acid phosphate, but slag phosphate has given lower average results than the other forms.
>
> Wheat bran has given better results than linseed meal.
>
> Nitrate of soda and muriate of potash, when used singly, have not given much increase.
>
> Superphosphate, nitrate of soda, and muriate of potash in combination have given better results than either alone, and the crop increase has been nearly in proportion to the quantity used, up to 1100 pounds per acre.

In regard to the varieties in addition to what appears in the above summary, they give Manum's Enormous a very excellent report; also Maule's Thoroughbred. I am a little surprised that they do not give the White Bliss Triumph a better report, both in regard to earliness and large yield.

Perhaps many of our readers have noticed the tremendous claims made by Salser in regard to his wonderful potatoes. The experiment station expresses the same opinion as last year—that Salser's Earliest is the well known Red Bliss Triumph that is sold all over the country as the standard early potato shipped in from the South. His Harvest King they can not distinguish from the Rural New Yorker; and the King of the Earliest, so far as they can tell, is identical with the old Early Ohio, and so on. This puffing well-known varieties under a new name in order to get extravagant prices should be vigorously shown up wherever it occurs. The Sir William receives again the hearty commendation that it received a year ago.

MEADOW-MICE GIRDLING THE TREES.

We have been in the habit of mulching the ground around our apple-trees so as to keep down grass, with all sorts of trash that has accumulated from the garden. I have, however, often cautioned the men about placing the stuff close up to the trunk of the tree in winter time. One man disobeyed my orders, and the result was that the finest Gravenstein tree in my orchard was completely girdled for more than a foot. The mice burrowed down into the ground, and even girdled the roots where they started out. Several other trees were injured more or less. Where completely girdled we inserted cions that reached from the bark on the roots up to the bark above, putting twenty of these in the Gravenstein tree. Why, I would hardly spare that tree for a five-dollar bill. After the cions were put in, every thing was well covered with grafting-wax, and we are watching anxiously to see the buds start out. I know it was meadow-mice that did the business, for we found four of them right at it. They were dug out and killed. Now, please remember that, while mulching is a splendid thing around young trees, it is dangerous business to put it right up against the tree.

APPLE-TREE BORERS, ETC.

Perhaps the worst enemy to fruit-growing we have here in Northern Ohio is the borer. In our own orchard it had killed several trees and just riddled others before I woke up to know what was going on For the past two or three years I have been scanning the agricultural papers, and books on pomology, to learn if there were a better remedy than digging them out of their holes, but there seems to be no help. Putting strong ashes around the trees, and washing the trunk and exposed roots with strong soapsuds may do very well, but you ought to dig them out, even if you do this. There are several substances that will kill the borer, but they will also kill the tree. In some recent investigations I found I could push a slender copper wire into their channels half way through the body of the tree, and sometimes to the depth of three or four inches. With a little practice you can tell when the point of the wire touches the borer. Of course, you are to punch him up until he is unfit for further mischief. Mr. E. C. Green, formerly of the Ohio Experiment Station, was talking with me about it, and we thought of bisulphide of carbon; but he said he would not dare to use it without first getting Prof. Webster's opinion in regard to it. I wrote him, and here is his reply:

> In regard to the use of bisulphide of carbon for borers, I would say that there might be some danger in injecting the fluid into the chambers made by the borers; but if cotton were saturated, and this placed in the cavities, so that only the fumes would spread, I think no ill effects would follow. Any other substance that would prevent the fluid from running into the wood would be effective, as the fumes are as deadly as the fluid itself.
>
> Wooster, O., Mar. 18. F. M. Webster.

Now, if anybody else knows any thing about the use of bisulphide of carbon for this business, will he please tell us about it? It may not do harm to inject it into the holes made by the borer; but to fill a cavity that extends into the heart of the tree, and runs downward several inches, might kill the tree; that is, the liquid might do so, but I am sure the fumes applied on cotton, as above, would not. Bear in mind, the fumes of this liquid are so much heavier than air that they will run down almost like water.

This same borer, or at least a similar one, has blocked all my attempts thus far at growing peaches. Where they dig in close to the root of a peach-tree, great quantities of peach-gum ooze out, and the tree is soon used up.

THE LOGAN BERRY, OR RASPBERRY-BLACKBERRY.

In answer to my request in our last issue, we have the following from friend Gault:

> I must say that they have fully come up to my expectation. The clusters were not as large as shown in the catalogs; but the berries were large and of good flavor.

I am exceedingly glad to receive this good report; but I wish that friend Gault had taken a little more space to tell how long he had had the Logan berry before it fruited. My impression is, he procured one of the first offered for sale as I did; and his experience with the celebrated Gault raspberry probably enabled him to secure a better result. This beautiful weather the latter part of March has started the buds on my own plants, so that we have some hopes of getting some fruit this year.

Since receiving the above we have had a

very pleasant visit from Mr. L. B. Pierce, the well-known agricultural writer, and he says the Logan berries at friend Gault's were about the prettiest berries he ever saw in his life, and thinks the plant is destined to be an acquisition.

SWEET CLOVER.

In Bulletin No. 70, from our Ohio Experiment Station, subject "Forage Crops," we find the following:

> As a forage crop for feeding or for hay, we have not found it of any special value, our cows and horses having refused to eat it either green or dried.

This to me is simply astounding. I can understand why cows and horses should be suspicious of it when it is offered them for the first time; but I can not understand how any cow or horse should refuse to eat it after having once had a taste of it when it is young and tender, say a foot or two in height. Inasmuch as the State of Ohio once called sweet clover a "noxious weed," this becomes an important matter. *Our* horses will eagerly grab for sweet clover in preference to any other green stuff that can be given them; and they will eat it cured as hay, and grab for the dried branches that have ripened seed. In my travels I have watched anxiously to see if I could find a bit of sweet clover in any field where horses and cattle were pastured, but I have never found it. I have also watched to see if I could find it along the roadside where horses or cattle were permitted to feed, and I have never seen that. I wish our readers would give us quite a lot of postal-card experiences. I say "postal-card," because if you write a long letter we can not publish a large number of them. We want reports from different localities. Let us settle this question if we can: Is sweet clover of value, both green and dry, as feed for stock, or is it not?

YELLOW AND WHITE SWEET CLOVER.

Of late we are having quite a few inquiries for both kinds of sweet clover—that is, somebody wants a package of the kind producing yellow and also a package of the other kind producing white blossoms. Now, my experience is that the color of the blossom indicates no difference at all in the plant. A great many times I have seen among the sweet clover a single stalk producing yellow flowers instead of white, but I have always regarded this as a sort of sport or accident, as it were. If I am wrong I shall be glad to be corrected. So far as I know it is one and the same plant that produces the white or yellow blossom. We find this peculiarity in other plants. In a row of red-pepper plants there will frequently be one producing yellow papers, and *vice versa*.

POTATO-TOPS FOR MULCHING STRAWBERRIES.

Once more I can say, as I said a year ago, that the best mulching I have ever got hold of for strawberries is potato-tops—especially the tops of the new Craig, because there are so many of them and they are so long. First, all of our strawberries covered with potato-tops are bright and green. Not a leaf is frosted or rotted or wilted, and not a plant is pulled out of the ground. You can look down through the tops and see them as green and fresh as they were last fall. Second, although the potato-tops are so light and loose, they are never blown off by the wind. Third, there are absolutely no weed seeds among them. Where we used strawy manure, with the great amount of wet warm weather we had during the past season, the strawberry leaves are more or less molded and rotted. Of course, the plants are alive, and are going to start; but they will not compare with those under the potato-vine mulching. Again, where we use straw or strawy manure, there will be more or less weed seeds or seeds of grain, and the latter is about as bad. Finally, the berries will grow right up through the potato-vines, which, by fruiting time, will become packed down so as to be the nicest thing in the world to keep the fruit out of the dirt. Now, remember, when you dig your potatoes, carefully remove the vines and stack them up out of the way until your strawberries are frozen up the first time, then spread your potato-tops along over the plants so as to lie up from eight inches to a foot high. You can see the plants down through the beds by looking closely, and the plants can look out and see the stars all winter long. The vines hold the snow, and they shade the ground sufficiently to prevent the injurious alternate freezing and thawing. Tomato-vines seem to answer much the same purpose; but they are almost too coarse, and do not lie in place as well. Besides, they are not as plentiful.

Oh, dear me! I almost forgot to say that you must keep your potatoes absolutely *free* from weeds. Weeds that have gone to seed, mixed in with the potato-vines, would not, of course, be allowable under any circumstances.

Since the above was in print I find I am not entirely original in my discovery. We clip the following from *Vick's Magazine* for March, in regard to mulching strawberries:

> We always liked the plan of the old farmer who grew potatoes largely, and who every year drew and spread a good-sized load of potato-tops over his strawberry patch. The potato top is richer in potash than much barnyard manure, and the winter's freezing and thawing reduces its bulk into fine mold. It has no weed seeds, which is more than can be said of most stable manure. It protects the plants just when it is most needed, which is through the coldest weather, disappearing when spring opens, and when the plants require all the sunshine they can get.

THE WAY IN WHICH THEY MANAGE TO "BREED UP" SUGAR BEETS SO AS TO GET THOSE SHOWING THE LARGEST AMOUNT OF SUGAR.

We extract the following from Bulletin No. 75, on beet-sugar production, from the Ohio Experiment Station:

> Plugs are taken from roots having the desired form and size in such a way as not to injure them seriously, and the juice of these plugs is analyzed to determine the sugar. Those which are satisfactory are planted the following spring to produce seed. The seed thus secured is planted and the beets resulting are again analyzed, as before, and only the best chosen. This process is repeated for several years, when, finally, all of the seed grown is turned over to the farmers for producing beets to be consumed by the factory. The beet roots so carefully selected for seed are called "mother beets." Millions of dollars, literally, have been expended in scientific studies of the beet root, with the wonderful results above noted. All of this care and selection results in making the beet-root one of the most artificial of plants, and it responds immediately to abuse by yielding less sugar, or, under good culture, by holding its sugar content up to the high standard set for it.

In the time of Napoleon Bonaparte they thought they had accomplished considerable when they had beet juice that was 6 per cent sugar; "now whole fields of beets are grown which carry 14 per cent of sugar in the juice; while single specimens have yielded 20 and 25 per cent of sugar." It was by breeding up in this way that the Kleinwanzleben model sugar beet has been produced. The sugar-beet belt, as it may be called, that is specially adapted to the growing of sugar beets, runs through Wisconsin and along through Northern Ohio south of Lake Erie. This belt is practically 100 miles wide. The town of Hudson, O., is said to be not far from the center of it, and it extends indefinitely both east and west.

THE NEW QUEEN AS AN EARLY POTATO.

Last year we had such a quantity of New Queens that we took no particular pains to test their earliness with other early potatoes; but we had one planting where the New Queens produced potatoes big enough to eat (and a large yield at that), in a shorter time, it seems to me, than any other potato we ever planted. In making out our list I felt inclined to put it among the extra earlies, but finally did not do so. Since then I find the following in a recent issue of the *Rural New-Yorker:*

> Mr. Albert Emerson, of Danville, Ill., tells the writer of these notes that he found the New Queen potato 10 days earlier than Early Ohio. Both were planted April 7, and the Queens were dug June 11, yielding about 300 bushels to the acre, twice as much as the Ohios. Both kinds were treated in precisely the same way. We are glad to receive such reports. They aid our readers in making selections.

Now, then, why not use the New Queen for an extra-early potato for market? In consideration of the quantity we have on hand, we offer them lower than any other potato in our list; and as they are now thoroughly disseminated, other dealers are offering them at like low prices.

THE DIFFERENT SPECIES OF SWEET CLOVER.

> By your seed-list I suppose the *cœrulea*, or bee clover, is not known by you to belong to the *melilot*. Here is its botanical position:
>
> *Melilot officinalis* (yellow), a native of Europe. A water is distilled from the blossoms that is used in perfumery.
>
> *Melilot vulgaris* (or *leucantha*). This is a white *melilot*. It is the one you call *M. alba*, which is incorrect; also the name, Bokhara, is incorrect, as my description later on will show.
>
> *Melilot cœrulea* (blue). This is the *cœrulea* of Europe, particularly of Switzerland and the Tyrol. This has the *melilot* odor in a high degree, and was much used formerly in medicine as a discutient, sudorific, expectorant, and vulnerary; also the many good qualities of the Schalzieger cheese are supposed to be due to this *melilot*, to which it is supposed to owe some of its flavor.
>
> *Melilot arborea* (Bokhara). Valuable in some remote parts for its fiber only, which is supposed to be closely allied to hemp in quality.
>
> *Melilot massimensis*. A native of the locality near the Mediterranean Sea, and by the native ancients given the name of "*Lotus*," whence the latter part of the name *melilotus* is derived.
>
> The foregoing information may be new to you, and it may not. Gray's Manual does not thus classify the *melilotus*, nor do any of our former botanical works. It is classified thus only by our most classical works. However, I believe this to be a correct classification. The only thing that I should like to suggest is, could not the *cœrulea* be cultivated and eventually become acclimated to grow spontaneously like our common white clover?
>
> Reading, Pa. L. L. Esenhower.

My good friend, I am exceedingly obliged for the facts you give us; but how is it that we find stalks of sweet clover bearing yellow blossoms scattered through our white sweet clover? Is not the difference only in color of the bloom? In regard to Bokhara, we first purchased our Bokhara seed of D. A. Jones, of Canada. When planted side by side with our own sweet clover no one could tell a particle of difference. I wrote him about it, and he said there *was* no difference, only that seedsmen generally called the hulled sweet clover Bokhara. Now, in order to settle this I should like to have a little bed of all the five kinds you mention, side by side. We already have the first three, if I am correct. Can you supply the last two? I shall be specially glad to get the real Bokhara. We have always made Gray's Manual our standard; and if that is incorrect, as I take it from what you say, I am afraid that at least a good many of us will have to go wrong.

MORE ABOUT THE CRANDALL CURRANT.

It gives me great pleasure to give place to the following:

> *Mr. A. I. Root:*—I have some Crandall currants, but mine bore very well. They were so full that I had to prop them. They were not as big as yours, except where one was by itself. I planted these in a rather low moist place. I had some on high dry ground that did not do so well. They are easy to raise, and sprout a great deal. No insect seems to harm them. I send you a few plants, and you can try how they do. H. L. Wise.
>
> Berkeley Springs, W. Va., Mar. 22.

THE BUNCH YAM SWEET POTATO.

I presume most of our readers noticed the spread-eagle advertisements that appeared in most of the agricultural papers last year, of the new sweet potato called Goldcoin. The claims made for it were in the most extravagant language, to the effect that nothing like it had ever been seen or tasted since the world began, etc. I felt satisfied at the time that it was a swindle, but we could not just prove it. The sequel finally appears in a circular just at hand:

> Last year a prominent seed-house contracted for all the stock I had to sell, and requested me to christen the improved strain with a new name, which I did, viz., Goldcoin Vineless. They advertised them extensively, and got a great many orders, I am told; but what kind of potatoes their patrons were supplied with I am not able to say, as they got but very few from me, and never paid me for what they did get. W. T. Simpson.
>
> Pine Bluff, Ark.

It is just as I expected. They had the comparatively well-known bunch yam, and nothing else. But they did not get rich at the business after all. So far as I can learn, there are just two vineless sweet potatoes or yams before the people, and each one of them has about half a dozen different names. The bunch yam is different in vine and different in foliage, and stands almost straight up until along late in the season. The other kind—the vineless sweet potato, called "General Grant" for short—has a leaf like the ordinary sweet potato, and with us, the latter part of the season, it makes considerable of a vine. Now, something should be done about confusing the agricultural world with any more names. If I have not got the names right, or the best ones, I am willing to be set right. One enterprising advertiser calls his the "McKinley" bunch sweet potato. I don't know but we shall have to call on the experiment stations or the authorities at Washington to give us the proper names of these new things, and then expose attempted frauds in that direction. We have already prepared printed sticks for the two different kinds, labeled respectively as follows:

Gen. Grant, or Vineless Sweet Potato

Bunch (or "Vineless") Yam.

MARCH'S STRAIN OF SNOWBALL CAULIFLOWER SEED.

We have just received 1 lb. of seed from the grower, and the following statement in regard to it:

> We send this time extra stock, picked heads, Puget Sound Snowball. We guarantee 98% to make perfect heads. H. A. March.

Just a word in regard to growing cauliflower. We make our first sowing of seed in the greenhouse in January; then we sow some more every two or three weeks, clear along until somewhere about June 1st. The first and last sowings make altogether the nicest heads, for it is a hard matter to grow good cauliflower during hot weather. Plenty of water during a dry time helps the matter very much; but as for myself I never succeed very well unless the weather is cool. Cauliflower will stand a tremendous amount of cold, especially in the fall. In the spring we often have to sell nice heads at the same price as early cabbage. People won't give any more for it; and if it were not for the expense of the seed we could raise it about as cheaply by the pound; but in the fall, when it comes time to make pickles, there is often a great demand for it, and none to be had. We have seen women try to buy specimens on exhibition at our county fairs, and they offered big prices for it: but nobody had any to sell. You want to have it head up so late that there will be no trouble from insects, and no trouble from the hot sun. Then you can get great handsome heads; and those that peep up through their beautiful green petals are veritable "snowballs" indeed. Do not sow your seed all at once Put in a little at stated periods as mentioned; and if you fail with one lot you will probably succeed with some of the others. Of course, we sell a very small package for 5 cts.; but if you are going to make several sowings you had better have ⅛ or ¼ ounce; price, respectively, 25 and 40 cents.

GRAND RAPIDS LETTUCE.

We are pleased to note that the low-priced seed offered at 50 cts. per lb. gives just as good plants, and as good a crop. as that which we formerly sold at $1 50. This is indeed good news to those who are obliged to purchase seeds. The low-priced seed is, we are told, grown in California, where they have long seasons, and ground specially suitable. Well, the friends who have been making a good thing growing lettuce under glass will discover that, at about this season of the year, the hot sun is liable to turn the lettuce a darker green, and make it tough. Lettuce, like celery, should be white and crisp. Perhaps you remember I told you a year ago about shading the crop from the sun. Shutters instead of sashes will do it nicely, but they must not be kept on too long or the lettuce will get so white and delicate that it will wilt down when the sun touches it; and about the very best thing to keep it just right is the cloth covering. The cotton sheeting to roll up on a pole, such as is described in the tomato book, is just the thing. Now, look out and do not lose your nice trade in Grand Rapids lettuce because you let it get too much hot sun. If the weather is cloudy, it is not so much matter: but do not let the sun turn it to a dark green and make it tough.

HOLLAND OR DANISH CABBAGE SEED.

Perhaps the friends have noticed that the finest cabbage on the market—in fact, the only real nice cabbage on the market for nearly two months past—has been the imported kind. It is quoted now at from 1½ to 1¾ cts. per lb., wholesale We retail it on the wagon at 2½ to 3 cts., according to quality. Year after year the Hollanders succeed in getting nicer hard cabbage than any thing we can grow in the United States. What is the trouble? Is it their superior soil and mode of culture, or is it the superior strain of seed? About ten years ago a correspondent of GLEANINGS in Holland, or somewhere over that way, sent me a paper of cabbage seed, and told me to plant it by the side of our best American strains, and let him know the result. The seed was of larger size than our cabbage seed; the plants had a rank, strong growth that I had never seen then and have not seen since. They seem to stand light freezes better than our own, and they made the finest cabbage I ever raised in my life. In fact, you can find a picture of a load of them in the back part of our book entitled Winter Care of Horses and Cattle. But let us now get back to the seed. I have been to considerable expense to obtain a limited quantity, which I am assured is the seed that produces the nice hard cabbage to be found now in our city markets. I allude to the imported cabbage. If you want some of the seed we can furnish it in five-cent packages or for 20 cts. per ounce, or $3 per lb. I do not know whether this seed came directly from Holland or not; but if we have a subscriber to GLEANINGS anywhere in the Old World, where this hard firm cabbage is grown, that will keep clear up into the winter and even into March, without a bit of trouble, I wish he would send me some more seed, and give me an invitation to go over there and learn how to raise Holland cabbage. I have long been wanting to take a trip where high-pressure gardening is the rule every day in the week, and where they have great windmills, not to pump the water on to the gardens, as we do, but to pump it off.

MONEY LOST IN THE MAILS—WHO SHALL STAND IT?

On page 655 of our issue for Sept. 1, 1896, I published a part of the correspondence of S. S. Meeks, of Meeks, Ga., omitting the name of the writer, and substituting X Y Z. Since that time we have had more or less correspondence, but have not succeeded in getting even one copper for the three smokers we sent Mr. Meeks—not even the 30 cts. in stamps that we paid out to get them to him. He finally said he would stand a part of the loss if we would give him legal proof that the money he sent never reached our office. In reply to this we sent him an affidavit, sworn to by my daughter and Mrs. Root's sister—these two women being the only ones at the time who opened the letters sent us. We claimed that, inasmuch as he sent the $1 80 mailed in a common letter (contrary to our directions for sending money to us), he should be the loser for at least a part of the amount. Thus far he stoutly declines to stand even a part of the loss. In our directions for sending money, which are on the back of every order-sheet, and which order-sheet Mr. Meeks acknowledges he had before him when he sent the money, we say:

> If there is no bank, express office, or money-order office near you, so that you can not use any of the above methods, you may send by registered letter, and we will be responsible; but if any of the methods first named are available, we will not be responsible for money sent in any other way.

Notwithstanding the above, he put the $1 80 in a common letter. When he wrote, complaining that he had not received the smokers, telling us the circumstances, we felt so sorry for his loss, and thinking the use of them might be worth more to him than the value of them, we sent them right along.

CRACKED WHEAT AND CRACKED RYE.

Dr. Mayer, in his excellent work "Domestic Economy," gives substantially all I have mentioned in regard to the use of cracked wheat for constipation. Furthermore, he says for obstinate cases substitute rye in place of the wheat. We have been using it for a week or two past, and find that it not only does all he says, but that it is a most luscious article of food. Get some nice rye, and have it ground and cooked exactly as described on page 170, March 1.

A Dollar Saved

is better than one earned. Read my 37th annual catalog, and don't send out West for goods you can buy cheaper here at home.

I have added 2400 feet of floor-space to my store-house and shall keep in stock Root's polished one-piece sections. Dovetailed hives, new Weed foundation, etc., in addition to my old line.

Best breeds of bees and queens at bottom prices. Don't buy until you see what you can do with me.

W. W. CARY, Colrain, Mass.

Our Prices are Worth Looking at!

IN THE

New Champion Chaff Hive Especially.

All other supplies accordingly. Send for catalogue and price list. Address, mentioning GLEANINGS.

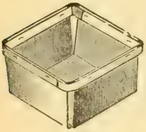
R. H. SCHMIDT & CO., Box 187, Sheboygan, Wis.

MUTH'S HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
ROOT'S GOODS AT ROOT'S PRICES,

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "**Practical Hints**" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Fruit Packages of all Kinds,



Also

Bee-keepers' Supplies.

We allow a **liberal discount** on early orders. **Why** not send for your supplies now to save the discount and avoid the rush of the busy season? Catalogue and price list free. Address

BERLIN FRUIT-BOX CO.,
Berlin Heights, Erie Co., Ohio.

It is here.

The year 1897 is here, and we are happy to inform our friends and customers that we are now better prepared than ever before to fill your orders for queens and bees. We have the largest stock ever operated by us, and we mean to be ready with plenty of bees and queens to fill all orders without delay that are sent to us.

Bees by the pound, $1.00; ten or more pounds, 90c each Untested queens for 1897, $1 00 each in February, March, April, and May; $5.00 for six, or $9.00 per dozen. For larger amounts write for prices. Have your orders booked for your early queens. Safe arrival guaranteed.

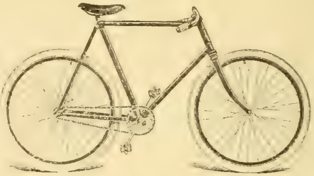
Root's goods, Dadant's foundation, and Bingham smokers. A steam bee-hive factory, and all kinds of bee supplies.

The ***Southland Queen,*** the only bee-paper in the South, monthly, $1 00 per year

Send for catalog, which is almost a complete book on Southern bee-keeping, giving queen-rearing in full, all free for the asking. If you want full information about every thing we have, and the bee-book, don't fail to ask for our 1897 catalog.

The Jennie Atchley Co.,
Beeville, Bee Co., Texas.

1897.



Cleveland Bicycles.

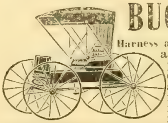
Every piece and part of the Cleveland Bicycle is made in our own factories by the best of skilled workmen, under most rigid inspection. The result is a Bicycle embodying, in a marked degree, features of safety, speed, and durability.

THERE'S HONEST VALUE IN IT.

We want the patronage of intelligent and discriminating buyers. 1897 catalog mailed free for the asking.

H. A. LOZIER & CO.,
Cleveland, Ohio,

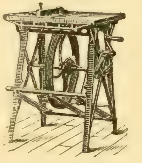
Send 4 cents postage for our booklet, "Shakespeare and the Bicycle." Twelve illustrations in colors by F. Opper, of "Puck."



BUGGIES,

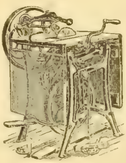
Carts, Surries, Phætons, Spring Wagons, Harness and Saddles shipped C. O. D. anywhere to anyone with privilege to examine at lowest wholesale prices. Guaranteed as represented or money refunded. Send for illustrated catalog and testimonials Free. Addr. (in full)

CASH BUYERS' UNION, 158 W. Van Buren St., B345 CHICAGO



Read what J. I. PARENT, of Charlton, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby Street, Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to
THE A. I. ROOT CO., Medina, O.



ONE MAN WITH THE UNION COMBINATION SAW

Can do the work of four men using hand tools in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging up, Jointing Stuff. Etc. Full Line of Foot and Hand Power Machinery. *Sold on Trial. Catalog Free.* 1-24ei

SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N Y

Please mention this paper

A BICYCLE TOUR

Three gentlemen for a European tour purchased new hundred dollar bicycles. One a Columbia—the others of well-known high-grade manufacture. They had an agreeable trip—particularly the Columbia rider. Before returning to America, it being late in the year—and wishing to buy new machines in 1897—they sold their wheels to a London dealer. The Columbia bicycle brought $65.00. The others $40.00 and $35.00 respectively. But one of the many proofs of Columbia superiority. If you look a year ahead there is wise economy in

Columbia Bicycles **$100** TO ALL ALIKE

STANDARD OF THE WORLD.

HARTFORDS, $75, $60, $50, $45

Better than almost any other bicycles.

POPE MANUFACTURING CO., Hartford, Conn.

Greatest Bicycle Factory in the World. More than 17 Acres of Floor Space.

Branches or dealers in almost every city and town. If Columbias are not properly represented in your vicinity, let us know.

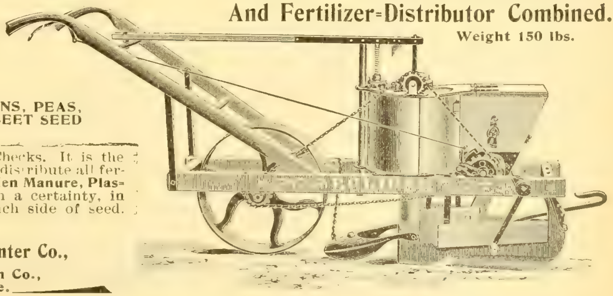
B. Hendrickson, Agent.

Medina, Ohio.

ECLIPSE CORN-PLANTER

And Fertilizer-Distributor Combined.

Weight 150 lbs.



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CORN, BEANS, PEAS, and BEET SEED

in Hills, Drills, and Checks. It is the only planter that will distribute all fertilizers, **Wet or Dry, Hen Manure, Plaster, Ashes, Etc.,** with a certainty, in different amounts, each side of seed. Send for circulars.

Eclipse Corn-Planter Co.,

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Are You Going to Buy

Apiarian Supplies or Bees?

If so, You Want the Best.

This is the only quality we offer. Our prices are right, and our '97 catalog describing them, and the management of bees, is yours for the asking.

We carry a large stock, and can ship promptly. Freight is a big consideration often amounting to 20 per cent of the value of goods. Let us quote you prices on what you need, delivered at your station,

Freight Paid.

They will cost but a trifle more than others charge at the factory. Our aim is to please.

Apiary, **I. J. STRINGHAM,**
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Please mention this paper.

We are Headquarters

for the albino bees—the best in the world. If you are looking for the bee that will gather the most honey, and the gentlest in handling, buy the albino. We can furnish others, but orders stand 50 to 1 in favor of the albino. I manufacture and furnish supplies generally. Send for circular with prices. **S. VALENTINE, Hagerstown, Md.**

$ $ $ $ $ $ $

are lost by keeping old and poor queens. It *pays* big to replace them with young vigorous ones *early* in the season, and get a crop of honey with little swarming. I have now untested queens — either light or dark Italians—at $1.00; 6, $4.50; 12, $8.25; tested, $1.00 up. *Guaranteed* to arrive safe at your office, and to be good queens, or replaced free. Remit by M. O. Send for catalog free for particulars. **J. B. CASE, Port Orange, Fla.**

Please mention this paper.

For Sale.

150 swarms of bees, at $3 00 each, f. o. b. Sickness cause of going out. The business must be sold. Will sell lot, buildings, and all pertaining thereto if desired. **I. W. HOUSE, Chittenango Falls, N. Y.**

Bees for Sale.

In 8-frame Dovetailed hives, queens from imported mothers. Price $4.00 to $5 00 per colony.

EDW. SMITH, Carpenter, Ill.

Look Here!

Do you need queens? the purest and best. If so, we are prepared by return mail to ship the 3 band and golden Italians, and silver gray Carniolans, untested, warranted purely mated, for 50c; tested, 75c; breeders $2.25.

JUDGE E. Y. TERRAL & CO., Cameron, Texas.

For Sale!

At Beeville, Texas, 200 colonies of first-class Italian bees. $600 cash for lot to close out. Address

S. A. LEEDS, Avery Island, Louisiana.

EARLY QUEENS, northern raised Queens tested raised last fall are hardy and prolific; $1.25 per return mail. Untested, in April, $1.00. I insure safe arrival.

DANIEL WURTH,
Falmouth, Rush Co., Ind.

Golden,
Adel,
Albino.

Texas Queens.

Dr Gallup says they are the best he has in his yard.

J. D. GIVENS, Lisbon, Texas.

Bee-hives, Sections, & Bee Supplies

AWAY DOWN.

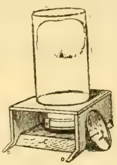
Queens and bees for 1897 at bottom prices.
Write for catalogue and prices.

CHAS. H. THIES, Steeleville, Ill.

In writing advertisers please mention GLEANINGS.

Don't Neglect Your Bees.

Bee-keeping may be made uniformly successful by judicious feeding. It is just as important with bees as with other stock.



Success in feeding depends very much on the feeder used. When you have tried the

Boardman Atmospheric Entrance-feeder

you will be convinced of this.

For descriptive circulars and price list, address

H. R. BOARDMAN, East Townsend, Ohio.

Queens Given Away.

Gray Carniolans and Golden Italians. We will give a fine tested queen (either race) to all customers ordering 6 untested queens, and a fine select tested queen to all who order 12 untested queens at one time. The queens given away will be sent to customers in August.

Grade and prices of bees and queens.	Apr., May, June.	July, Aug., Sept.
Untested queen	.75	.65
Tested queen.	1 50	1 25
Select tested queens	2.50	2.25
Best imported queens	5.00	4.00
1 L.-frame nucleus, no queen	.75	.50
2 L.-frame nuclei, no queen..	1.50	1.00
Full colony of bees, no queen in new Dov'd hive	5.00	4.00

We **guarantee** our bees to be free from all diseases and to give entire satisfaction. Descriptive price list free.

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Dovetailed Hives.

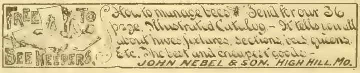
Sections, Extractors, Smokers, and every thing a Bee-keeper wants. **Honest Goods at Close Honest Prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Your Orders for Untested Queens

will be promptly filled by return mail, 75c each: $8.00 per dozen Tested, $1.00 each: $11 00 per dozen. Queens are carefully bred from best Italian stock. Satisfaction guaranteed on every order.

J. W. K. SHAW & CO.,
LOREAUVILLE, LA.



FREE TO BEE KEEPERS. "How to manage bees." Send for our 36 page Illustrated Catalog.– It tells you all about hives, fixtures, sections, bees, queens, Etc. The best and cheapest goods.–

JOHN NEBEL & SON. HIGH HILL, MO.

Barnes Foot-power Circular Saw for Sale,

with scroll-saw attachment; new; $15.00 cash. Van Deusen foundation-mill for sale; 10 inch; new; $8.00.

A. J. HUTTON, Edmeston, N. Y.

THROAT AND LUNG DISEASES
DR. PEIRO, Specialist.
Offices: 1019, 100 State St.
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GARDENERS! Try Our Specialties.

Hood River Strawberry best shipping—35c per dozen; $2.00 per hundred, postpaid.
Everbearing Strawberry June till October 40c per dozen; $2.50 per hundred, postpaid.
Oregon Yellow Danvers Onion largest yielder and best keeper known 90c per pound; 5 pounds to one address, $3 25, postpaid. Oregon Hubbard Squash—best yet $1.00 per pound.

Buell Lamberson, Seed Store, Portland, Oregon,
Agent Root's Bee-supplies.

FEED YOUR BEES

WITH BASWOOD. PROTECT THEM WITH EVERGRENS.

100, 2 to 5 feet, **$10. 100 Baswood Seedlings, $1.** Delivered free. Other sizes just as cheap. **50 $1.00 Bargains** by mail. Millions to select from. Also **Fruit Trees, Small Fruits, Vines, etc. Liberal cash commissions for clubs. Illustrated catalogue free.** Good local Salesmen wanted. Address

D. HILL, Evergreen Specialist, DUNDEE, ILL.

BUY DIRECT

and pay but one profit. Our assortment is one of the best and most complete in

FRUIT and ORNAMENTAL TREES, SHRUBS, PLANTS, ROSES, VINES, BULBS, SEEDS

Rarest new, choicest old. Send for our **catalogue to-day;** it tells it all; **an elegant book, 168 pages, magazine size,** profusely illustrated, **free.**

Seeds, Plants, Bulbs, Small Trees, etc. by mail postpaid, safe arrival and satisfaction guaranteed. Larger by express or freight. 43d Year. 32 Greenhouses. 1000 Acres.

STORRS & HARRISON CO.,
Box 331 Painesville, Ohio.

Betscher's Bulbs & Plants Grow and Bloom.

Gladioli our specialty—over 250 kinds. The best in America. Try a few of our bargains.

1 Fine Gold Band Lily or 1 Caladium, 15c; 2 for 25c.
3 choice French Cannas or 2 Gloxinias, 25c.
8 Roses or Carnations or Petunias or 6 Begonias, 25c.
6 New Novelty Chrysanth'ms or 8 Geraniums, 25c.
8 Choice Chrysanthemums or Tuberoses or Heliotrope, 25c. Any 5 collections $1.00, or 5 half collections 60c. For 15c and names of your flower loving friends we will send 12 very fine Gladioli bulbs.

BETSCHER BROS., Can 1 Dover, Ohio.

Manum's Enormous.

The greatest-yielding potato on earth. They lead all at several experiment stations. Prices low. Potato and Queen circulars free.

A. E. MANUM,
Bristol, = Vermont.

The Cultivator,

Published semi-monthly at Omaha, Nebraska, is the leading authority on fruit grown in Nebraska, and on general agriculture in the West. Send for sample copy and free strawberry-plant offer. Address

The Cultivator, Omaha, Neb.

Five Per Cent Off till April 15 to Reduce Stock.

When the order amounts to five or more dollars the goods will be delivered f. o. b. cars Springfield, Ill.

W. J. Finch, Jr., Chesterfield, Ill.

1500 Bbls. Sweet-potato Seed.

Yellow Jersey, Carolina, and Nansemond, selected size, $2.50 per barrel; 2d size, $1.75 per Bbl.

Red Jersey and R. Nansemond,	2.50	"
Red Bermuda and Red Spanish,	2 75	"
South. Queen and Bahama White,	2 75	"
Vineless or Gold Coin Prolific,	4.00	"

Discount of 25c per bbl. on 5 bbl. lots.
Send for free circulars. Adddress

L. H. MAHAN, Box 143,
Terre Haute, Ind.

CHOICEST STRAWBERRIES

☞ Send for it. CATALOG FREE TO ALL.
C. N. FLANSBURGH, Leslie, Mich.

FAY'S CURRANTS.

Large stock, extra strong, 2 years old, 20 bushes for $1, or $3 50 per 100; 1 year old, 25 bushes for $1, or $2.50 per 100. **FRED H. BURDETT, Clifton, N. Y.**

FARM FOR SALE. Farm of 40 acres, 30 cleared; good new buildings; well at door; good old orchard; 7 miles from Traverse City; 1 mile from school. Land is level. Good place for bees. Price $900—the buildings cost me that. Can have picture and description by writing me

OSCAR W. JEFFERSON, B. 15, Traverse City, Mich.

Second-hand Bicycles

offered recently have all been sold, but we have three more. One **Remington Racer** (made by the Remington Arms Co., weight 20 lbs., 1¼-in. tubing; nearly as good as new, and listing $110.00. We offer for **$5o.** Also one $100 **Remington Roadster,** almost new, ridden but little by our Mr. Calvert, which we offer for **$60.** Reason for selling, A. I. R. and J. T. C. expect to ride 1897 models. Also one $85 model 9 Monarch, 1895 pattern, in good riding condition, for $30. Catalogs with full particulars, showing each model, furnished upon application. Wax at market price will be accepted in place of cash.

THE A. I. ROOT CO., Medina, O.

ITALIAN BEES on seven frames in portico hives at $4 and $5. C. G. FENN, Washington, Conn.

POULTRY SUPPLIES

Our New 1897 Illustrated Live-stock and Poultry-supply Catalogue

is "up to date." Many new kinks in poultry culture are suggested and illustrated and no LIVE "chickener" should fail to see it. Has BEE FIXINGS too.

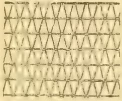
What is YOUR NAME?
Where do you live?

JOHNSON & STOKES,
SEEDSMEN
717 & 719 MARKET ST.
PHILADELPHIA, PA.

BLACK INK
RED
INDELIBLE
COPYING
BLUE

1-2 Pint Sample
Black, Red, or Blue,
Six Cents.

HANDY MFG. CO. DETROIT, MICH.



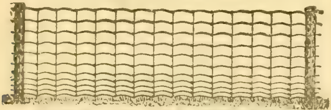
WOVEN WIRE FENCE

Best on Earth. Horse-high, Bull-strong, Pig and Chicken-tight. With our DUPLEX AUTOMATIC Machine you can make 60 rods a day for

12 to 20 cts. a Rod.

Over 50 styles. Catalogue Free.

KITSELMAN BROS.,
Box 51. Ridgeville, Ind.



JACK AT ALL TRADES.

"A farmer should be able to construct everything needed on the farm" (?) If he wants a wagon, buy a few tools, spokes, hubs, felloes, etc. and **make** it. His time is nothing—"he can't afford to help support big factories." The average farmer will advise you to "tell that to the marines," but many of them listen to just such arguments on the fence question. Are they wise?

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

Just Arrived!

My first carload of goods from **The A. I. Root Co.** has arrived, and I am in shape to fill all orders promptly at their catalog prices. Send for my 36-page catalog; also send a list of what goods you will need, and I will make you special prices on early orders.

GEO. E. HILTON,
Fremont, Mich.

"WATCH POUDER'S AD"

SEE THAT WINK?
BEE SUPPLIES.

Root's Goods at Root's Prices.

Pouder's Honey Jars and every thing used by bee-keepers. Low freight rates; prompt service. Catalogue free.

WALTER S. POUDER,
162 Mass. Ave., Indianapolis, Ind.

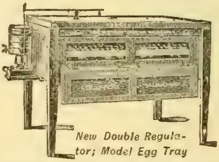
One Cent Invested in a postal card will get my large catalogue of all Root's goods. Can save you money.

M. H. HUNT,
Bell Branch, Mich.

Do You Want An Incubator?

An Honest Machine, Honestly Built.

Sold Under a Positive Guarantee.



New Double Regulator; Model Egg Tray

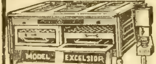
"NEW AMERICAN."

Want Our Catalogue?

It's a pretty book of 68 pages, finely illustrated; worth dollars to every poultryman. A 2c stamp gets it.

GEO. J. NISSLY, SALINE, MICH.

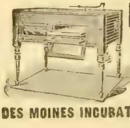
HATCH Chickens BY STEAM—With the MODEL EXCELSIOR Incubator



Circulars free. Send 6c. for Illus. Catalogue.

Simple, Perfect, Self-Regulating. Thousands in successful operation. **Lowest priced first-class Hatcher made.**

GEO. H. STAHL,
114 to 122 S. 6th St. Quincy, Ill.



LIFE PRODUCERS
THE SUCCESSFUL INCUBATORS.
LIFE PRESERVERS
THE SUCCESSFUL BROODERS.
All about them in our catalogue.
——Sent for 6 cents.——
DES MOINES INCUBATOR CO., Box 503 DES MOINES, IA.

THERE'S MONEY IN EGGS.

THE PEERLESS INCUBATOR COMPANY TELL HOW TO GET IT—
HANDSOME ILLUSTRATED CATALOGUE FREE!
ADDRESS 513 OHIO ST. QUINCY ILL.

SPECIAL NOTICES FROM BUSINESS MANAGER

G. B. LEWIS CO.

A change in the advertisement of this firm, received too late for this issue, announces that E. T. Abbott, of St. Joseph, Mo., is their special agent for the Southwest, and sells their hives and sections at factory prices.

BEESWAX MARKET.

There is very little change in the beeswax market. Values are a trifle higher, so that we will now pay 25 cents cash, 27 cents in trade, for average wax delivered here. We have stock enough for two months, but we can use all we get, as we are working up over a ton a week. We do not look for any higher prices this spring, as there is considerable stock in the hands of brokers.

QUINBY BEE-SMOKERS.

We do not catalog the Quinby smoker this year, but there may be some who prefer this style. We still have a few in stock here and in Chicago, which we offer at special prices to close out. The 2-inch single-blast we offer with other goods at 35 cents each; by mail, 50 cents, postpaid. These go from Chicago only. A few 2½-inch double-blast at 60 cents each, or by mail at 75 cents, postpaid, from Chicago only. We have here a few 2½-inch double-blast hinge nozzle which we offer at 65 cents with other goods, or 85 cents, postpaid. Some large 3½-inch single-blast at 90 cents each; by mail, $1.10. One or two double-blast, 10 cents extra.

DRAWN FOUNDATION.

As we go to press we are just getting started our latest machine for the manufacture of drawn foundation, sometimes called deep-cell foundation. Mr. Weed, with one or more assistants, has been hard at work on this machine for several months; and when finished it is designed to make pieces 5x8 inches in size. We were in hopes to have it finished and tested sufficiently to warrant putting a price on sample lots of the product in this issue; but for the present we will agree only to book orders for our 5-cent sample package, and for a 25-cent package, which will include 6 pieces 2x4 inches, put up in a 4¼ section, mailed in a carton, and sent postpaid for 25 cents in stamps.

HONEY MARKET.

The Cleveland market seems to be bare of choice white comb honey. We know of several places where it could be placed at fair prices, if there is any to be had. Dark or off grade honey can hardly be disposed of in this market at any price. Those who have choice white comb honey still on hand will do well to write us, with description of honey, size and style of packages, quantity you have, and price you hold it at.

Of extracted honey we offer choice Wisconsin clover and basswood in 60-lb. cans, 2 in a case, at 7 cts. a lb. We can also supply it in one-gallon cans, 8 in a case, at $6.50 per case; 2-case lots at $6.25; 5-case lots at $6.00, which is 75 cts. per gallon—a low price for such nice honey. It has been liquefied.

BUSINESS AT THIS DATE.

We are well up on small orders, which, with a few exceptions, where something special is required, are shipped within three or four days after being received. Occasionally orders are delayed a few days waiting for stock to arrive. We are not quite so prompt on carload shipments, as we have gotten behind on these, and seem unable to catch up. Since our last we have shipped a car to Mechanic Falls, Me., where J. B. Mason has charge of our Northeastern Branch. Another car has gone to St. Paul, Minn., to our Northwestern Branch, where H. G. Acklin has charge at 1024 Miss. St. Another car has gone to the Chicago Branch, 118 Mich. St. We have shipped a second car to Jos. Nysewander, Des Moines, Iowa. A car has also been made up and shipped to Salt Lake City, Utah, where Jno. H. Back, 235 West Third North St., has our goods for sale. We are loading a second car for Geo. E. Hilton, Fremont, Mich., and another for M. H. Hunt, Bell Branch, Mich. We have orders booked besides for three or four cars more to go out as soon as we can get them ready.

MAPLE SUGAR AND SYRUP.

The delicious sweets of the sugar maple are becoming plentiful in our market, and we are able to offer a choice article of this year's make at lower prices than usual. We handled last year over 15 tons of maple sugar, and upward of 1000 gallons of syrup, so we are prepared to supply it in large and small quantities. We also guarantee what we furnish to be absolutely pure maple. Choice first-run syrup, in 1-gallon cans, we offer at 90c per gallon; 5 gallons, $4.25; 10 gallons, $8.00; 20 gallons and upward, 75c per gallon. Good clear syrup, not first run, at 5c per gallon less.

Choice first-grade sugar, 9c per lb.; good second-grade sugar, 8c per lb.; fair third-grade sugar, 7c per lb.; 50-lb. lots, ½c per lb. less; barrel lots of 300 lbs., 1c per lb. less. Your orders will receive prompt attention.

SECOND-HAND FOUNDATION-MILLS.

We now have on hand the following second-hand foundation-machines, which we offer at the special prices annexed:

One 6-inch hex. No. 1360. Price $6.00 This is one of our late style of mills, which has been used by a large manufacturer, and traded back for a new one. It is in fair order, and will still make good thin foundation 10 feet to pound. One leg was broken in shipment, but, fortunately, on the end opposite the crank, so that this hurts it little for use if screwed down to bench. Good value for the price.

One 6-inch Pelham, No. YY. Price $4.00. If wax is sheeted the proper thickness for the grade of foundation wanted, this will make foundation which will be much better than nothing, and at the price it should serve some one a good turn.

One 10-inch round-cell, No. 1505. Price $18.00. This is one of our late style of mills, and is practically new, having been used almost none, and it is a bargain at the price.

One 10-inch round-cell, No. 1794. Price $12.00. Suitable for medium brood foundation. This mill has been used in our wax-room, and is still in good condition. Good value.

One 10-inch round-cell, No. WW. Price $12.00. This mill is in excellent order, and cheap at the price.

One 10-inch round-cell, No. VV. This is an old-style mill; has been used but little. While it does not compare with late make, it will answer a good purpose for those who wish to make only a limited quantity for their own use. Price $8.00.

One 10-inch round-cell, No. XX. Price $7.00. This is about the same as the last described—an old-style mill in fair condition.

Besides the above second-hand mills we have a few 6-inch ones; 12 inch round deep cell, and three 14-inch round-cell mills, which have never been used, which we will sell at special prices. Samples mailed to any interested.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

ONION-SETS.

Our onion-sets are all sold out except the White Multiplier and Whittaker; and neither of these can be strictly called onion-*sets*. We can procure more on short notice for our friends, but not less than $3.50 per bushel. They are getting to be scarce, and are going up rapidly. Better use onion-*plants* now if you fail in getting sets.

NICE CURRANT-BUSHES AT LOW PRICES.

I take pleasure in calling attention to the Fay currant-bushes advertised in this number by Fred H. Burdett, of Clifton, N. Y. Last year one of our people picked two quarts of nice currants from one dozen of these bushes the same season they were planted. Of course, he wants more of the same kind this spring. Just think of it—five cents for a nice currant-bush that will bear a crop the year it is set out!

BLACKWALNUTS AND HICKORYNUTS.

As we are not sold out, we thought best to remind the friends that, when ordering goods by freight, we will put you in a peck of nice hulled blackwalnuts for only 10 cts., or a peck of nice shellbark hickorynuts for only 35 cts. Of course, we can ship them by themselves if you wish, but it will hardly pay to send a peck of blackwalnuts costing only 10 cts., alone, when the freight would be considerably more than that.

FORCING ASPARAGUS.

We are just now gathering our first crop, grown under glass without heat. The plants were put a foot apart in a bed wide enough to receive sash. They have been growing strong for two years past. The glass was first put on the bed about the first of March, and now we have beautiful shoots 6 inches long, two or three weeks in advance of any that may be expected in the open air. This two or three weeks, however, enables us to get 40 cts. per lb. for what would otherwise have been only about 10 cts.

YELLOW NANSEMOND, OR JERSEY SWEET POTATOES

As it is now about time to bed these for plants, we can furnish the potatoes as follows: 1 lb., by mail, 15 cts.; 1 peck, 25 cts.; ½ bushel, 40 cts.; 1 bushel, 75 cts.; barrel, $2.25.

EARLY PEABODY RED YAMS.

These gave such excellent satisfaction last year that we shall offer plants and potatoes for sale this season. Prices of potatoes: 1 lb., by mail, 20 cts.; 3 lbs. by mail, 50 cts.; ½ peck, 40 cts.; peck, 60 cts.; bushel, $2 00; barrel, $4.50.

Prices of bunch yams and vineless sweet potatoes same as Early Peabody red yams. See page 256.

OUR SQUASH-BOXES FOR FORCING STRAWBERRIES.

The squash-box which we have several times described, with a pane of glass to slide in the top, is a splendid thing for raising choice strawberries. It gives them plenty of light, protects them entirely from the hard freezing nights in the fore part of April, and the glass need not be moved at all. So large a part of the area is shade, and so little glass, it never gets so hot at this season of the year as to injure the plants. We are using quite a number of them on choice varieties that we are very anxious to have make runners just as fast as possible.

ONIONS AND LETTUCE DURING THE CLOSING DAYS OF MARCH.

Day before yesterday some one came over from the train, and ordered 25 lbs. of lettuce and two dozen bunches of onions; yesterday a like amount went in the same direction, and another similar order came to-day We packed the lettuce in a new 1½-bushel basket, costing 15 cents. We got for the lettuce 12½ cts. per lb., or for basket and all about $3.00. For the onions we got 3 cts. a bunch. A bunch of onions at this season is 5 oz. Now, we did not have to peddle these things, and did not have to hunt a market. I presume some one saw our nice-looking stuff while he was passing through on the trains, so he came to us for it. When a gardener can so handle his business, and produce garden stuff so choice that people come to his place of business and take all the stuff he can raise, and carry it away, then he is right up in "high-pressure gardening"—providing, of course, he gets a price that will pay. I am quite well satisfied with the above prices. The lettuce was, of course, grown under glass, but the onions were right out in the open air, where they have stood for the past five or six years, with almost no attention at all except an annual mulching of manure

In our sub-irrigated bed, where we had those fine strawberries a year ago, we got a basketful of lettuce ($3.00) from under a single sash. How is that for high-pressure gardening?

"VEGETABLES UNDER GLASS."

We are having a big demand for this little book by H. A. Dreer, and it is well that there should be. But one unfortunate part of it is, by some blunder of the writer the price as given in our seed catalog is 15 cts.—3 cts extra for postage if sent by mail, when it should be 20 cts., and postage 3 cts. extra. Ten thousand seed catalogs were sent out before the mistake was noticed. We can not well write to our customers and tell them there was a mistake, for only 5 cents. And then here is another dilemma: If I mention the matter here in print, it just calls attention to the fact that you can get the neat little book for 15 cents if you just send the money and don't say any thing about it. I don't see any way out unless I buy 1000 at once, and by this means succeed in getting them at so low a figure that I can afford to sell them for 15 cts. Remember, if you get them at this low price you must send 3 cts. more for postage if wanted by mail. For many years we have been making a distinction in price on books between having them sent by freight or express with other goods, or postpaid by mail. It has always seemed to me unfair to charge a man the price of the book postpaid, when he does not pay any postage on it at all; and yet this is the way the greater part of the book publishers have been doing for years past. I notice also another blunder in the price of the standard work, "Gardening for Profit," by Peter Henderson. The new price of this book is $1.35; 12 cts. for postage if wanted by mail. The price given in that unfortunate seed catalog is $1.85. The latter is the publisher's price. The lower one is the price recently made. I suppose the reason why your old friend made so many blunders was because he was obliged to correct the seed and book catalog when he had not quite recovered from his recent attack of grip.

TWO THOUSAND BUSHELS OF SEED POTATOES TO BE GIVEN TO OLD SUBSCRIBERS.

It looks just now as if we should have a great surplus of potatoes, as we did last year; and if we are going to be obliged to give them away we very much prefer to give them to our old subscribers, and to the patrons of GLEANINGS for years past. One or two have accused us of being more liberal to our new subscribers than to our old ones. But that is a mistake. We do not offer new subscribers any thing; but it is to our old friends who take a little pains to get GLEANINGS introduced into new localities and new families. Now, then, whoever will be the means of getting GLEANINGS started in some place where it has not been going before, may have a dollar's worth of potatoes for every dollar he sends us for a new subscriber. The person who sends us a new name must be a subscriber himself, and one who has paid up all arrearages. Every one who gets a renewal, or renews himself (after paying up all arrearages), can have fifty cents' worth of potatoes for every dollar he sends us. Let me now repeat, so there will be no mistake: A dollar's worth of potatoes to every one who sends a dollar for GLEANINGS, with a new name; 50 cents' worth of potatoes to every one who sends us a dollar for GLEANINGS as a renewal one full year in advance for himself or somebody else; but please take notice, if you want your potatoes sent by mail you must send at the rate of 10 cents per lb. for postage and packing. This offer refers to all the potatoes enumerated in the list below except White Bliss Triumph, Rural New-Yorker, Carman No. 3, Burpee's Extra Early, and Manum's Enormous. What stock we have left of these will probably be sold out without the necessity of giving them away.

NAME Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
White Bliss Triumph	$ 15	$ 35	$ 20	$ 35	$ 60	$ 1 00	$ 2 50
E. Thoro'bred, Maule's *	30	75	40	80	1 50	2 25	5 00
Early Ohio....	15	35		25	40	75	2 00
Early Norther	12			20	35	60	1 50
Burpee's Extra Early....	15	35		25	40	75	1 75
Freeman	15	35		20	30	60	1 50
New Queen				20	30	50	1 25
Monroe Seedling..........	12			20	30	50	1 25
Rural New-Yorker No. 2..	12			20	30	50	1 25
Sir William	15	35		20	30	60	1 50
Carman No. 1	12			20	35	60	1 50
Carman No. 3	15	35	20	25	40	75	2 00
Koshkonong..............	15	35		25	40	75	2 00
Manum's Enormous.... ..	15	35	20	35	60	1 00	2 50
New Craig................	15	35	20	35	60	1 00	2 50

*50 strong eyes, by mail, postpaid, $1.00.

We can furnish seconds of the Thoroughbred, Burpee, Freeman, New Queen, Sir William, Carman No. 1, and New Craig, at *half* the above prices. All the others (seconds) are sold out. Please note that this low price on seconds does not apply to potatoes sent by mail postpaid.

KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS is worth $25 a year. Long may it live and prosper, if you please, preaching God's word as well as that of the bees. T. P. MURRAY.
Fort Collins, Colo.

I am just finishing putting up the 4-piece sections I bought of you, and will say they are the best that I have ever bought, and are away ahead of any 4-piece white-poplar sections that I have ever seen.
Luce, Mich., Jan 20. WM. CRAIG.

The new A B C of Bee Culture was received the 20th inst., for which I thank you very kindly. The book is worth twice the money. It is more complete than any other I ever saw. F. A. WADE.
Tawas City, Mich., Mar. 22.

I am much pleased with the journal, and especially with those talks of Bro. A. I., which are so elevating in tone, so strengthening to Christians. The ten chaff hives I purchased of you about two years ago are veritable palaces, and the self-spacers are quite perfection. R. C. HUGENTOBLER.
Miami, O., Feb. 19.

I subscribe for 34 different journals and scientific papers, but I consider GLEANINGS as among the best; but the proper appreciation of an editor's efforts, I believe, is to pay the subscription; therefore find enclosed $1.00. GEO. L. VINAL.
Charlton City., Mass., Jan. 1.

OUR SECTIONS IN ENGLAND.

Your sections and frames have given me and my customers every satisfaction, since I got them through Mr. Boxwell, of Ireland. I like GLEANINGS and its story. WILLIAM HOGG.
Dalbeattie Road, Castle-Douglas, Jan. 21.

Your talks on Christ, and other religious matters, are of great benefit to me, and are a help to keep me in the straight and narrow way. Cast your bread on the water, and it will return after many days with God's blessing on you and yours.
Clove, N. Y. JAS. E. WAY.

I sold a small lot of honey that was put up in boxes which I bought of your house last year. The packages looked fine; and when filled with white comb and clear white honey, nothing could look nicer. The sale was made March 20, and I got 15 cents per box or section, they being full weight, a pound each. All who saw the honey declared it to be as fine as they ever saw. The sale was made at a home market (our county town).
Cuba, Kan., Mar. 24. W. H. EAGERTY.

I received the A B C of Bee Culture, and to say I am very much pleased with it is expressing it lightly, as I would not take $5.00 for it if I could not get another copy. It certainly ought to be the first investment of every beginner in bee-keeping. I am so much pleased with it I could not help letting you know what amount of good knowledge I have got out of it, even if I have had it only six days.
N. Chester, Vt., Mar. 8. F. H. GUILD.

HILTON'S CAR OF GOODS.

We unloaded and invoiced the car of goods yesterday, and to say that we are all pleased with the manner in which the goods are put up is putting it very mildly. The foundation needs special mention, and I am more than pleased with the manner in which you put up my hives and supers. My customers must be pleased with them, not only for the manner in which every thing is put up, but for the quality as well. GEO. E. HILTON.
Fremont, Mich., Feb. 11.

I am probably your oldest bee-keeper. I have been in the business ever since Langstroth invented his hive (more or less). I went ten miles to see the first Langstroth hive, and I paid $8 00 to R. K. Otis, of Kenosha, Wis., for an individual right. I also went ten miles to see the first Italian queen. She was purchased by Joseph Pencil, of Stephenson Co., Ill., of M. M. Baldridge, of St. Charles, Ill. I have 35 hives. Your friend, JOHN BARFORD.
Cross Keys, De Kalb Co., Ga.

I am well pleased with the *variety* of reading-matter in GLEANINGS. A. I. Root's travels in the Southwest, Mr. France's pioneer story, and Fred Anderson, all help to break the dose. When we have so much bee-literature and nothing else it gets monotonous. I am great for variety, especially in reading-matter. I. N. ARNOLD.
Kalona, Iowa, Jan. 5.

THE LEAN-MEAT DIET, AND WHAT IT DID WITH HOME TREATMENT—NO DOCTOR.

I had an attack of old man's diarrhea, which lasted for several weeks last fall. I hunted up your description of the lean-meat diet, and bought a cheap sausage-grinder to prepare it. The meat helped me out of the trouble, and probably added several years to my life. O. B. BARROWS.
Marshalltown, Ia.

THE IGNOTUM TOMATO FOR CANNING-FACTORIES, ETC.

The Ignotum tomato seed I bought of you last spring produced the best and largest tomatoes I ever saw. The proprietor, Mr. S. Z. Hoffaker, of the canning-factory at Belleville, said I brought the finest tomatoes to the factory, all through the season, he had bought. I tell you, they were hard to beat. LEVI B. YODER.
Belleville, Mifflin Co., Pa.

OUR ADVERTISING COLUMNS.

Please find inclosed 40 cents in payment for adv't in Jan. 1 GLEANINGS. I have been confined to the house for three weeks with bronchitis, or would have sent the money sooner. As usual the ad. effected an exchange promptly. I do not remember an instance in which an ad inserted in GLEANINGS has not brought me prompt returns—not simply answers, but actual trade or exchange.
Newtown, O., Jan. 27. J. FERRIS PATTON.

QUEENS TO NEW ZEALAND, ALIVE.

Dear Sir:—I beg to inform you that, on the 6th instant, I received your card, and two tested queens. The queens were all right; there were two workers alive in one of the cages, and five or six in the other, There was about one third of the candy left. The queens have started laying all right. I may tell you that they are spendid, and I beg to thank you very much for sending them. WM. BIRSS.
Ohinewai, N. Z., Nov. 15.

THE NEW WEED FOUNDATION.

Those starters you sent for the hives are the finest foundation that I ever saw. It is the first Weed foundation that I have seen. I have for the past two years bought my foundation of ——, with whom I am personally acquainted. I expected to this year; but those samples took my eye at first sight. THAD. H. KEELER.
South Salem, N. Y., Jan. 10.

Inclosed find 25 cents to pay for GLEANINGS to April 1, at which time please discontinue it, if I do not send another remittance before that time. I should have stopped it at the close of 1896 had it not been for Fred Anderson, of which I want to see the conclusion. Though past threescore years and ten, I like to read any thing written in such a style as to recommend the religion of our Lord Jesus Christ; and sometimes this is best done by such stories, as many will not read more solid articles. I still like GLEANINGS, but my sight is failing.
Mansfield, W. Va , Jan. 20. LUCINDA A. ZINN.

Mr. Root:—I wish to express my hearty thanks for GLEANINGS; it has been a welcome messenger at my table for many months. It always revives the pleasant memories of my boyhood days when I studied your A B C, and had my mind filled with humming visions. I shall never forget the early impressions made on my mind by your earnest and tender messages. They seemed meant for *me*, and made me hunger for a holy life; and I must say that it is with the greatest of pleasure that I still read your Home talks and expositions of the truth. I have but one sentiment for GLEANINGS—may God bless it in its twofold mission, and spare its editors for many years of precious seed-sowing.
Yours fraternally,
Dresden, O., Dec. 2. REV. W. H. WILSON.

QUEENS TO NEW ZEALAND.

I am pleased to say I received the queens all right—two of them alive and the other only just dead. There was still a little movement in her when she arrived. There was only one bee alive with one queen, and two with the other. This shows the advantage of their coming in an envelope in the letter-bags. They arrived o e day earlier than GLEANINGS did. They all had two or three cells of honey left, but the candy was all gone except in the one that was dead. I believe it would be better if the lid were put close on the wire, and the ventilation to be by holes in the sides of the cage only, as it seems to me that the bees worry themselves to death. T. G. BRICKELL.

Dunedin, N. Z., Dec. 23.

[Mr. B., in his order, requested that we put on letter postage, believing that would secure more prompt delivery. We did as requested, and the above is the result. But perhaps it would be well to state that we sent other queens at the same time and to the same country, with ordinary postage, and the queen went through alive.—ED.]

Root's Goods.

Before placing your order for this season, be sure to send for Root's

1897 Catalog, ready now.

Our 1897 hives, with improved Danzy cover and improved Hoffman frames, are simply "out of sight." Acknowledged by all who have seen them to be a great improvement over any hive on the market, of last year.

Comb Foundation.

WEED NEW PROCESS

Cheaper and better than ever; clear as crystal, for you can read your name through it. Process and machinery patented Dec. 8, 1896, and other patents pending. Samples of the new foundation free.

The A. I. Root Co.,

Main Office and Factory, **Medina, Ohio.**

Branch offices at 118 Michigan St., Chicago; Syracuse, N. Y.; St. Paul, Minn.; Mechanic Falls, Me.; No. 10 Vine St., Philadelphia, Pa.

FOR SALE. Cheap during 1897, Italian bees and queens and Root's bee-keepers' supplies. Address OTTO KLEINOW, 122 Military Av., Detroit, Mich.

Tested Queen for 90 cents; untested, 65 cents. One frame nucleus, 65 cents; 2-frame, $1.10. Discount on quantities. Send for circular. **Cooper & Gillett, Quebeck, Tenn.**
Money-order office, Sparta, Tenn.
(A few black queens at 15c each; hybrids, 20c.)

Wants and Exchange Department.

Notices will be inserted under this head at one-half our usual rate. Advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 c. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange Italian queens, bred from imported mothers, for plants, seeds, pet stock, or Cowan extractor. What have you to offer?
J. H. GARRISON, 1011 N. 23d St., St. Louis, Mo.

WANTED.—To exchange Belgian hares, homing pigeons, White Leghorn eggs or breeding-stock for Italian queens from imported mother, pure-bred geese, ducks, or ducks' eggs, or offers.
EUGENE MANNING, Jacksonville, N. Y.

WANTED—To exchange for any thing useful, 40 colonies bees; also 100 Simplicity supers with wide frames. A. Y. BALDWIN, De Kalb, Ill.

WANTED—To exchange eggs from B. Rocks, W. and Buff Leghorns, S. S. and Buff P. Bantams, for wax or queens. J. HALLENBECK, Altamont, N. Y.

WANTED—To exchange young laying queens for bee-hive machinery or full colonies of bees; will pay cash for bees if preferred.
H. G. QUIRIN, Bellevue, O.

WANTED—To exchange a brand-new set of Encyclopedia Britannica, cost $60, also a brand-new Webster's Encyclopedic Dictionary, latest edition, bound in sheep, cost $10, for strong hives of bees, hybrids preferred. FRED HOLTKE, care of F. Bendt, cor. Sixth and Orange sts., Newark, N. J.

WANTED—To exchange incubator, hives, supplies, rubber printing-outfits, or cash. Want honey, wax, or fdn.
O. H. HYATT, Shenandoah, Page Co., Iowa.

WANTED.—To exchange 60-lb. cans in good order, boxe , valued at 25 cts. each, delivered, for comb or extracted honey, of this or next season's crop, at the market price. B. WALKER, Evart, Mich.

WANTED—To exchange full colonies or nuclei of bees for gun or W. Wyandotte pullets.
I. J. STRINGHAM, 105 Park Place, New York City.

WANTED—To exchange standard varieties strawberry-plants and Turner raspberry-sets for any thing useful. H. R. GEBHART, Miamisburg, O.

WANTED—To exchange turnip seed or bees for mink, muskrat, and house-cat furs.
C. G. MARSH, Belden, Broome Co., N. Y.

WANTED.—To exchange single-case World typewriter (good as new); also hybrid bees in full colony, for extracted honey or offers.
A. W. GARDNER, Centreville, Mich.

WANTED.—To exchange strawberry-plants, Bubach, Jessie, Warfield, Crescent, Haverland, Gandy, valued at $2 00 per 1000; Cuthbert raspberry; Snyder, Taylor, Western Triumph blackberry, cheap for beeswax. A. P. LAWRENCE, Hickory Cor., Mich.

WANTED.—To exchange bicycle for foot-power screw-cutting lathe, Barnes saw, or mechanic's tools. ROBERT B. GEDYE, La Salle, Ill.

WANTED.—To exchange talking-machine, 300 bee papers, and a 22-caliber rifle for bees or offers.
B. W. HOPPER, Garden City, Kansas.

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Honey Column.

CITY MARKETS.

Kansas City.—*Honey.*—No. 1 white, 12@13; fancy amber, 11@12; No. 1 amber, 10@11; fancy dark, 9@10; No. 1 dark, 8@9; white extracted, 5@5½; amber, 4@4½; dark, 4; beeswax, 25.

C. C. Clemons & Co.,
April 10. 423 Walnut, Kansas City, Mo.

New York.—*Honey.*—Fancy white, 11; No. 1 white, 10; fancy amber, 9; No. 1 amber, 8; fancy dark, 6; white extracted, 5@5½; amber, 4@4½; dark, no sale; beeswax, 26@27. There is some demand yet for comb honey, and selling fairly well at above quotations. While receipts are light it keeps coming in a small way. Extracted quiet and without change. Demand for buckwheat has ceased, and no more sale for it. Beeswax about the same, arrivals light and the demand likewise.

Hildreth Bros. & Segelken,
April 10. 120-122 W. Broadway, New York.

Milwaukee.—*Honey.*—Fancy white, 13@14; No. 1 white, 12@13; fancy amber, 11@12; No. 1 amber, 10@11; white extracted, 6@7; amber, 5@5½; dark, 4@5; beeswax, 25@27. The season for *sweet* and beautiful things has come. Springtime with its life and hopefulness causes the heart of humanity to throb quicker, and the taste for sweet things is in harmony with what the eye beholds. The demand for honey is better, and the supply is getting less every day, and values on choice well sustained.

A. V. Bishop & Co.,
April 9. Milwaukee, Wis.

Chicago.—*Honey.*—Fancy white, 12; No. 1, white, 10; fancy amber, 8@9; No. 1 amber, 7; fancy dark, 7@8; No. 1 dark, 7; white extracted, 5@7; amber, 5@6; dark, 4½; beeswax, 25@27. This month will close the season for comb honey pending the new crop.

R. A. Burnett & Co.,
April 10. 163 So. Water St., Chicago, Ill.

St. Louis.—*Honey.*—Fancy white, 13; No. 1 white, 12; fancy amber, 11; No. 1 amber, 10; fancy dark, 9; No. 1 dark, 8; white extracted, in bbls., 5½@6; in cans, 6½; amber, in bbls., 5; dark 4½@4¾; beeswax, 24½@25, prime. We have sold 7000 lbs. of extracted honey in bbls. this week at 5 cts. There is a good demand for this class of goods from manufacturers. Fancy and No. 1 white comb scarce, and in small way would sell readily.

Westcott Commission Co.,
April 10. 213 Market St., St. Louis, Mo.

Boston.—*Honey.*—Fancy white, 13; No. 1, 11@12; fancy amber, 10; white extracted, 7@8; amber, 6@7; dark, 6; beeswax, 25. Comb honey is selling very slowly, with a full stock on hand. Beeswax in good demand, with a very light supply.

E. E. Blake & Co.,
April 10. 57 Chatham St., Boston, Mass.

Detroit.—*Honey.*—Fancy white, 10@11; No. 1 white, 9@10; fancy amber, 8@9; No. 1 amber, 7@8; fancy dark, 7; white extracted, 5@6; amber, 4@5; dark, 4; beeswax, 24@25. There is little demand for comb honey, and quite a large stock in commission houses.

M. H. Hunt,
April 10. Bell Branch, Mich.

Cincinnati.—*Honey.*—No. 1 white, 12@13; No. 1 amber, 10@12; white extracted, 5@6; amber, 4@5; dark, 3¼@4; beeswax, 22@25. Demand slow for all kinds of honey, while arrivals are fair. There is a good local demand for beeswax with fair arrivals.

Chas F. Muth & Son,
April 9. Cincinnati, O.

Denver.—*Honey.*—Fancy white, 11; No. 1 white, 10; fancy amber, 9; white extracted, 6; beeswax, 25. We can not quote better prices than the above for our market, and we will not give a false price to the readers of Gleanings.

R. K. & J. C. Frisbee,
April 12. Denver, Col.

Minneapolis.—*Honey.*—Fancy white, 12@13; No. 1 white, 10@11; fancy amber, 9@10; No. 1 amber, 8@9; fancy dark, 7@8; No. 1 dark, 6@7; white extracted, 6@7; amber, 5@6; dark, 4½@5½; beeswax, 22@25. The demand for extracted has shown a somewhat better tone of late, but prices are nominally unchanged. Comb honey in light demand and nominal.

S. H. Hall & Co.,
April 12. Minneapolis, Minn.

Columbus.—*Honey.*—Fancy white, 12@12½; No. 1 white, 11; fancy dark, 8. Several shipments of very fine buckwheat honey have been on the market the past week, and sold under value, i. e., 6c.

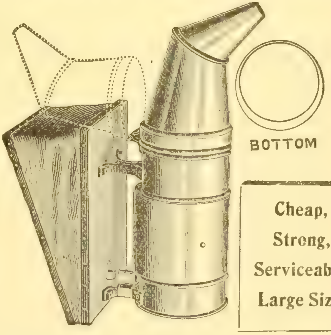
The Columbus Com. & Storage Co.
Apr. 12. 409-413 N. High St., Columbus, O.

Philadelphia.—*Honey.*—White extracted, 5@6; amber, 4@5; dark, 3½@4; beeswax, 26. No comb honey in our market, except odd lots broken down, no call whatever.

Wm. A. Selzer,
Apr. 12. 10 Vine St., Philadelphia, Pa.

For Sale.—$25.00 for one 500-lb. barrel of A No. 1 linn extracted honey, F. O. B. cars here; or 5½c in packages of 60 lbs. each. J. B. Murray, Ada, O.

The New Corneil Smoker.



Cheap,
Strong,
Serviceable,
Large Size.

JUST THE THING for those who want a first-class smoker at a medium price. Size of cup, 3¼ inches; curved nozzle, hinged so as to swing back; legs of malleable iron, secured by bolts. The blast is the well-known Corneil principle. Weight of smoker, only 20 ounces.

Price $1.10, postpaid, or 85c if sent by express or freight with other goods.

THE A. I. ROOT COMPANY,
MEDINA, OHIO.

For Sale.—Barnes foot-power saw. Perfect in every particular. Have made over 800 hives with it. Five saws; every thing in order; all good as new; all out of bee business—no use for it. First draft for $20.00 takes it, F. O. B.

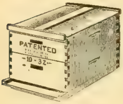
E. D. Keeney, Arcade, N. Y.

A Tested Queen for 50 cts.

As usual, I am re-queening my apiary this spring with young queens, selling the tested queens, that are removed, at $1.00 each. These queens are fine Italians, right in their prime, being of last year's rearing. I am also starting a large number of nuclei in which to test queens, and can soon give purchasers their choice between queens of *this* or *last* year's rearing. You ask, Where does the 50-cent queen come in? It comes in right here. To every one not now a subscriber who will send $1.00 for the **Review** for 1897, I will send one of these tested queens for 50 cents.

There are thousands of bee-keepers in this broad land, who, if acquainted with the **Review**, would read it year after year, and it is to once get it into such hands that this special offer is made. I will also send the **Review** one year and 1000 strictly first-class sections for only $2 50. Or a Bingham Conqueror smoker and the **Review** for only $1.75.

W. Z. HUTCHINSON, Flint, Mich.



DANZENBAKER HIVE AND HONEY

won Highest Honors at the Fairs, and pays Premiums to purchasers

of 50 hives,	$50	for the best	100	Danzenbaker	sections
" 25 "	25 "	"	50	"	"
" 20 "	20 "	"	40	"	"
" 10 "	10 "	"	20	"	"
" 5 "	5 "	"	10	"	"

☞ Further particulars regarding the premiums, also special catalog of the Danzenbaker Hive and System, furnished on application. Address

FRANCIS DANZENBAKER, Medina, Ohio.
Care of The A. I. Root Co.

Nuclei==Order Now,

of the old reliable queen-breeder, a 2-frame (Hoffman) nucleus and warranted queen (Italian) that we will guarantee will produce a large colony by June, for $2.75.

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Jan. 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.

T. F. BINGHAM, Farwell, Michigan.

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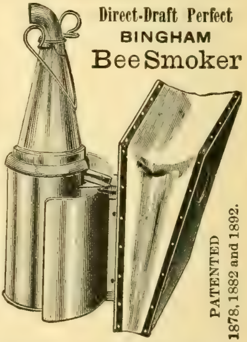

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

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STRAY STRAWS FROM DR. C. C. MILLER.

THE SUBSOIL PLOW that costs least money of any I know about is sweet clover.

I WONDER if a thin section is not likely to be more uniform in weight than a thick one. [Yes, sir!—ED.]

J. M. HICKS says that, 40 years ago, there were in Indiana 50 colonies of bees for every one now.—*American Bee Journal.*

J. E. FOWLER says, page 241, he intends to cut starters full size of the section, and fasten top and bottom. Better try it first on a small scale, friend Fowler, for I think they'll buckle badly, and the thinner the worse. [Yes, indeed.—ED.]

A 1⅞-IN. SECTION weighs how much? 16 oz., when well filled, p. 231; 14½ oz. ten pages later. The next man will give a different weight, and Aikin and Moll will give a different weight another year. You may as well give up first as last that there is *no uniform weight* for a section of a given size.

"SOME OF THE very people who at one time condemned footnotes to articles by the editor are now asking for them. . . . There will be more footnotes in future." — *Canadian Bee Journal, Editorial.* [I am sure our readers would almost unanimously vote for the footnotes. If for any reason, through a crowd of work on the part of the editor, they are left off, I hear from it.—ED.]

FOUL BROOD. Col. Whipple reports as entirely successful a foul-brood cure he found in "Straws." Equal parts thoroughly mixed of pure carbolic acid and common pine tar; put two tablespoonfuls into a shallow tin box, with perforated cover under the brood-frames, and renew in three months if not cured.—*Proceedings Colorado State Convention in American Bee Journal.* [See answer to C. Davenport.—ED.]

HERE'S MY POSTAL on that sweet-clover question, page 255. I've seen lots of sweet clover growing along the roadside where horses and cattle were allowed to feed, and it continued in health, but was never permitted to grow tall. And I've seen a few stalks in a pasture that were allowed to grow undisturbed, but I think it might have been different if there had been more of it so the stock would have learned to eat it.

"A 4¼x4¼ SECTION in the flat is 17 inches long," says R. C. Aikin, p. 232. I got caught on that too. I know it *figures* 17, but it *measures* 1/16 or ⅛ less. Take your rule and see. [That is true; but I suspect that the majority of people do not know that there is this difference. It has to be less than 17 inches, or the section would be a trifle more than 4¼ when folded. The reason is, the fold at the V is not a sharp right angle.—ED.]

YOUR FIGURES on page 232 must be amended, friend Aikin. You've taken off ¼ in. for thickness of wood, but you must take off also ½ in. from thickness of honey for two bee-spaces. "A 3⅞x5x1¾ has just a trifle more capacity in cubic inches than a 4¼x4¼x1⅞," but it will hold about ½ in. less honey, if ¼ in. is the bee-space. A 4x4x2 section contains just twice as many cubic inches as one 4x4x1, but it will contain just three times as much honey.

R. C. AIKIN is perhaps nearer right than the editor in thinking there's lots of cheating with light-weight sections; but he's wrong in thinking I produce only full weights. Of late I rather favor their being so light that the customer can't be fooled into thinking they weigh a pound each. [I am not going to say any thing more about light-weight sections; for somehow the more I say about them the more I am misunderstood. I suspect that, if we could get together and "argufy" for a while, we should find that we are pretty much all of a mind.—ED.]

DOOLITTLE, in *American Bee Journal,* is rather down on outside diagnosis. He quotes one of the outside-diagnosers who talks of going out *every day* during early spring, in cold storms, to place the ear at the side of the hive, and rap, to see whether they need feeding. Thinks he'd rather take frames out once than do all that every day. [So would I. I believe in outside diagnosis to determine certain conditions. When I want to make a sure thing of it I pull out a frame or two.—ED.]

WOODCHOPPER, what ails you? On p. 239 you've mixed up Danzenbaker with Doolittle, and think I'm off to cite a crack so big that bees could go through freely. No matter how big, doesn't that prove my point that the bees commenced storing before filling the crack? But you're wrong in thinking "they never stop up a crack that they can go through freely." They'll not stop up a crack that they *do* go through freely, but many a one that they *can* go through freely, and in the very case in hand they filled that ½-inch crack about half.

THE COLORADO STATE BEE-KEEPERS' ASSOCIATION passed a resolution denouncing supply-houses for changing "the present style of the standard 4¼ section to any other style."—*American Bee Journal.* [So far as I am aware, only two sizes of sections are standard—the 4¼ square and the 4x5; and even the last named costs 10 cts. per 1000 extra. Practically there is only one standard section on the market, and that is the 4¼ square. The sales of any other are as a drop in the bucket compared with the 4¼. Do not denounce the poor supply-houses just yet.—ED.]

IN REPLY, Mr. Editor, to your question how bees can walk up a perpendicular surface without a sucker, Cheshire says the pulvillus gives out a clammy secretion by which the bees *stick* on the glass, the pulvillus being thrown automatically into action when the claws fail to catch. After the bee has walked on the perpendicular glass for a time the adhesive material gives out, and the foot slips. High powers of the microscope reveal traces of the secretion left on the glass. [Yes, I remember Cheshire did say something about a secretion from the foot of the bee. Without taking time to look it up now, I am of the opinion that he also spoke of the little sucker that seems to be partially developed.—ED.]

C. DAVENPORT exposed to the fumes of bisulphide of carbon for 10 hours a piece of brood comb advanced with foul brood, then put it into a healthy hive, and it did not convey the disease. The fumes kill worms, moth, and eggs, but spoil the flavor of comb honey, and make it thinner.—*American Bee Journal.* [If bisulphide of carbon would always disinfect combs it would be a great boon for those afflicted with foul brood; but I question very much whether it would kill the *spores.* I should rather expect to find, in Mr. Davenport's healthy hive, foul brood in about three months' time, or about the time when the spores should have hatched, and the active disease begun its work again. So far our own experience seems to show that nothing but actual boiling heat will kill the spores, although the bacilli themselves can very often be killed out by doses of carbolic spray.—ED.]

"SYRUP made by boiling will granulate more or less," says F. A. Salisbury, p. 239. Yes, but only, I think, because it's thicker, not because it's boiled. Make the unboiled the thicker, and see if it doesn't granulate more. The bees operate chemically on the thin more than on the thick. [I suspect you are right; but heating water has a tendency to make it take up more sugar than it will hold when cold. If it is never heated at all it will take up only what it can hold. In making syrup, people are a little careless, sometimes, and get in too much sugar for the water; but they are not as liable to do this when the water is cold, for the very reason that they can not get in too much, because it will not hold it. What it will hold at a cold temperature it will hold right along. What the water will hold when hot, it will not hold when cold.—ED.]

THE VITALITY of the spores of *Bacillus alvei* is destroyed when exposed to atmospheric air for from 24 to 36 hours, according to Dr. Howard's book. Prof. Harrison, of Ontario Agricultural College, finds them uninjured at the end of six months, if kept in shade.—*Canadian Bee Journal.* [It is well known that sunlight is a strong germicide. If people would let the sunlight stream more into their rooms there would be fewer disease-germs in them. What if it does fade the carpet some? Faded carpets are much more to be preferred than pale children faded by disease. Perhaps the difference in the opinions of the two authorities as above given can be explained by saying that one contemplated sunshine when the other did not. In that case, both may be right. One thing I am sure of, however; if I knew positively that the inside of the hive contained the spores of foul brood I would not risk 24 or 36 hours of sunshine to kill them. While it *might* do so, I should greatly prefer immersing them for a few seconds in boiling water.—ED.]

HONEY IN PLACE OF SUGAR, FOR COOKING.

I wonder if our bee-friends know that honey can be used for every thing that sugar is used for. I never buy sugar to preserve. I use honey for jellies, jams, preserves, and butters. Fix your fruit, and cover with honey; set it on the stove to cook. You can put a cover on. I make jelly as usual on the stove. I also sweeten fruit to can, make gingerbread and snaps. I do not like it in tea or coffee. It is nice in fruit cake. Flavor highly to hide the twang.

A WOMAN BEE-KEEPER.

Ridge-Pole Musings

By R. C. Aikin.

HIVE-CONSTRUCTION: PRESENT DISCREPANCIES, AND THEIR REMEDY; A DIVISIBLE-BROOD-CHAMBER HIVE, WITH SUPERS AND BROOD-CHAMBERS OF THE SAME DEPTH.

In my article on "Sections; Size, Weight, Shape, etc.," in the preceding number, I spoke of our present hive system as being like trying to build a nice fine house, but doing it a little at a time over a term of years. Langstroth invented the movable frame—not to fit or work with any system or set of fixtures then in use—but a *new departure* to facilitate handling bees, and in a way altogether different from any preceding method. He did not have the two and one pound sections, but made a frame that, in general shape and size, would be convenient and still make a hive surface on top, giving large room for surplus boxes.

In the course of years came the invention of sections, or single comb boxes. They were a grand step in advance: but both the frames and sections were crude as in any new developments. Improvement has gone on until our hives, in point of workmanship and finish, are very fine.

Having adopted the L. frame and 4¼x4¼x2 section, many devices have been resorted to to get the combination of brood and surplus apartments in the most convenient working order. We built a little at a time. As new features were added, the difficulty was to get the new additions to fit on to what we already had, and at the same time retain all the good points. Any one who has built a house, adding a room here, a porch there, at some other time a bay-window, etc., knows how expensive and unsatisfactory such a structure is. It seems to me this is just where we are in the matter of hives. The thing to do now is to commence anew, make a thorough study of the old structure to find its faults, then form into a new combination the valuable features in one harmonious structure.

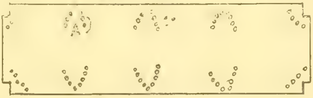
The L. frame, in general principles, is a good one. A deeper frame of the same length would give too large a comb—more liable to break with heat or handling. Its length, when used in an eight-frame hive, makes the hive too long and narrow. A square house both conserves heat and saves material. The L. frame takes a chamber 18¼ inches long. Four 4¼ sections equal 17 inches; hence, when we put these sections over the L. frame we have 1¼ inches to lag up in some way. If wide frames or section-holders are used we can fill the surplus room with their ends. Wide frames are undesirable. Holder-bottoms and pattern-slats must match the section-bottom, and even then two difficulties appear—sagging of the bottom, and slightly out-of-true sections. These two features make a lot of room for propolis. The T super has fewer objections on account of propolizing, yet the sections are necessarily loose or wide apart at the tops—corresponding to the thickness of the T's. This super is better than wide frames or holders.

In the earlier days, the great object sought after was a knowledge of the habits of the bee, and to control swarming. Our hives were constructed more for that than any other purpose, the shape and appearance of the surplus honey being a secondary consideration. Research into the habits of the bee has brought that down to a science, and in such shape that we now can learn from books and journals what then we sought by personal observation and practice. Our great object now is to apply our knowledge in such a way as to make it yield financial returns.

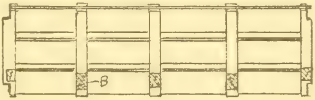
Since, then, we are not now keeping bees so much to study their habits as to profit financially, and since this profit must come from the surplus-apartment, I deem it proper to put that first. Instead of fitting the super to the brood-chamber, I would fit the brood-chamber to the *best surplus fixture*. Having arrived at this conclusion, let us find out what is

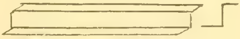
THE BEST SECTION AND SUPER.

FIG. 5



TIN AND WOOD SEPERATORS.

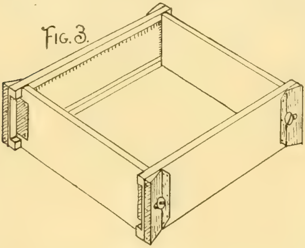




TIN SUPPORT.

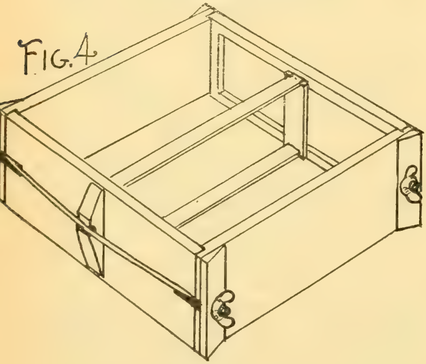
In the previous article I discussed sections at length, and therein took my stand for a 4x5x1¾ section, the sides 1¾ their entire length, and the tops and bottoms a trifle wider, their entire length, than the thickness of the *finished* comb. If the section be 1¾ thick, the top and bottom should be about two bee spaces less in width than the sides, or 1¼ inches wide. Four 4-inch-wide sections equal 16 inches, the inside length of my super. Being 5 inches deep, my super must be 5¼ inches deep. Eight 1¾-thick sections equal 14 inches. I am going to recommend separators ⅛ inch thick; and where the section uprights join the separator I will cleat it across with ⅛-inch cleats, so my separator will be ⅜ inch thick where the section joins it, having a half bee-space in each face, between cleats. See illustration of wood separator in Fig. 5. Since I allow a half bee-space—counting ¼ inch as a bee-space—in each face of the separator, I will cut down the thickness of my sections just that much. This will make my sections just 1½ instead of 1¾. My super will then be 8 sections 1½, plus 7 separators ⅜, plus ⅛-inch strip on each super side, a total inside width of 14⅞ inches. The super is to have adjustability in its width, so I have it 5¼x15x16. Fig. 3 shows rim or body.

FIG. 3.



If one uses the tin separators, the sections should be ¼ inch thicker than with the cleated wooden one. If the cleated one be used with the thin section, when the sections are cased for market there will be only ¼ inch space between comb faces, whereas with the plain separator there is ½ inch space. These thin sections will not require the case to be so wide by 1½ inches in the 24-section size.

FIG. 4



Our old hives have been so constructed that the brood-chamber could not be interchanged with surplus fixtures, except when extracting. I purpose having brood-chambers, extracting-supers, and section-supers completely interchangeable, that the same body may be used for either. To accomplish this I make the brood and extracting frames just the depth of sections, and just as long as 4 sections, and close-fitting wide end-bar. See frame in Fig. 4.

The sections are supported in the super by the separators, the little spurs shown at A and B—see Fig. 5—being imbedded in the uprights of the sections, and all held there by compression, the compression being applied when the super is filled, and sustained while on the hive by the bolts, shown in Fig. 1, or by rods as in Fig. 4. The rod method, as in Fig. 4, is the original form as patented in the Aikin-Knight "K. D." hive. The bolt method, as in Fig. 3, is equally good, is neater, allows greater latitude in adjustability, and places the nuts and threaded parts away from wet and rust. The separators are longer than the net inside measure of the super, and reach past the sections into the inset or gain in the super ends, hence the compression has simply to hold the mass together, the weight being carried by the separator ends on the shoulder in the inset. The brood-frames are held in the same way, except that the tin support (see Fig. 5) hangs on the inset shoulder and under the frame end at the bottom.

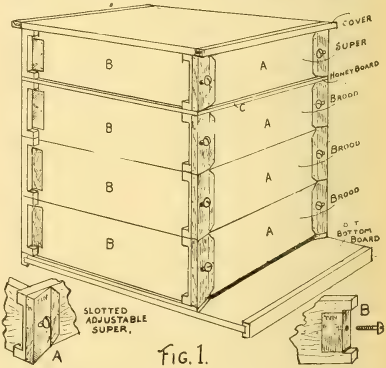


FIG. 1.

This hive is a divisible-brood-chamber one, hive-bodies to be used as brood, extracting, or sections, at will. Taking out frames and tin supports, and putting in sections and separators, converts it from one to the other. Both comb and extracted can be produced at the same time.

SWARMING CONTROLLED.

My method of controlling swarming is by unqueening. This, with ordinary hives, requires removing queens, then nine days later removing all cells but one, or even all, and giving a queen. This ninth-day work comes after the honey-flow has begun—a busy time—and the labor increased, because of much honey in the combs. I propose to cut off that trouble by putting the queen-excluding honey-board between the brood-sections ten days before the flow, and the eighth, ninth, or tenth day take away the chamber that has the queen and *open* brood, leaving the one with sealed brood and working force on the old stand with the sections on. Three or four days later I can give the old colony a ripe cell or virgin queen. You see I left them with only *sealed* brood, when I took the queen, so they could not build cells, nor can they till the young queen gets to laying, and by that time the brood is hatched, and they are just like a colony that has swarmed and reared a young queen of their own

How long and how extensively have I used the "fixin's" here described? Of the principles, I have used nearly all of them—some quite largely. The complete hive, just as illustrated, has not been used. I have supported sections in this manner, used shallow frames in divisible hives, as shallow as 4¼-inch frames; have tried both forms of compression—in fact. almost the entire thing. I know it will work.

Loveland, Colo.

[There is quite an advantage in having brood-chamber and super of the same depth; but there is the disadvantage that one brood-chamber is too shallow for many localities, and two (one on top of the other)—well, many don't like them for the reason that, for some operations, there are too many frames to handle for one brood-nest.

Mr. Aikin's method of supporting sections by means of the separators is a little like the plan advocated by Oliver Foster some ten years ago. The sections were supported by cleated separators, and the super sides were made to compress against the sections and separators by a locking-device at the corners; but I think he used the arrangement only a short time.

I should say the old clamping-device, as shown in Fig. 4, would be very much better than the new one shown in Fig. 3. The screw and tins in Fig. 3 appear to me to be too "flimsy." Moreover, they would always require the use of a screwdriver. The thumb-nuts in Fig. 4 could be worked by the fingers, and, when clamped, would be much more substantial. I believe Mr. Aikin would make a mistake to discard the thumb-nut and bolt arrangement that he has tried, for something he has not tried that has the appearance of being "flimsy."—Ed.]

THE EUCALYPTUS AS A HONEY-PLANT.

ITS VALUE TO BEE-KEEPERS AND ADAPTABILITY TO CALIFORNIA SOIL; THE CHARACTER OF THE HONEY.

By W. A. Pryal.

A quarter of a century ago the eucalyptus was a rare tree in California; but to-day it is one of the most common of the numerous foreign trees to be found here. Perhaps it might be safe to say that it outranks either the olive, the grape, the lemon, or the orange; and we all know that these are extensively grown here, and have attained a world-wide fame by their productiveness in their adopted home.

Of the several hundred varieties of this genus of trees to be found in Australia, Tasmania, and sparingly in the Malay Archipelago, but comparatively few have been introduced into California. Of these the Tasmanian blue gum (*Eucalyptus globulus*) is by far the most common. The accompanying illustrations are of this tree

CLIMAX-CLEV'O

The engraving of the flowers of a gum-tree, shown on page 155 of the current volume of Gleanings, and therein described in the accompanying letter-press by Mr. J. H. Martin, is a variety that is rare in California, especially in the central portion, where the great majority of the gum-trees are grown, because of the more moist condition of the soil there. There are several varieties that are quite ornamental, among them being that described by the above-named writer. As briefly stated in previous issues of Gleanings, this genus of trees is interesting to bee-keepers on account of its being a prolific yielder of nectar.

A FEW OBSERVATIONS IN RELATION TO THE TREE IN GENERAL.

The trees (I am going to confine myself almost entirely to the red and the blue gum in this article, and when I speak of the tree it will be understood that it is of these two varieties, unless otherwise stated) grow to a great height. Some have been found in their native country almost as tall as some of the celebrated big trees of California. Some of the trunks of these tall trees have a diameter of from 8 to 16 feet. The wood of a well-matured gum-tree is very durable, and may be used for a variety of purposes. It is necessary to work it up as soon as possible, as it soon becomes very hard. When green, it is as easy to work as willow.

There as several peculiar things about the

THE EUCALYPTUS; THE HONEY-BEARING TREE OF CALIFORNIA.

gum-tree that are not found in other trees. We have all observed that, in the leaves of the trees we have about us every day (of course, some of us do not see many leaves in winter, which is not the rule in California and other favored parts of the earth), the upper surface is turned to the sun, while the lower side is facing the earth. In the gum, this is different. One of the edges of the tree is turned toward the sun, thus always exposing the leaf to the light. The color of the leaves is not of that green appearance that we are wont to see in the leaves of the trees we find in this country. The color is generally of a bluish or pearly-green hue. The leaves of the red gum are much greener than those of the blue, and do not have the gray color while young. Botanically they are what are called alternate, though in the young trees they are opposite, and of a more blue or pearl color. The first form is shown in the cut of the flowers; the latter is apparent in the young growth of shoots shown in the left of accompanying half-tone. Shoots that spring from the stumps of trees that have been cut down, or branches that have been severely trimmed, have the same characteristic of leaves as those of young trees. When the young trees have attained their second or third year they begin to put forth their alternate leaves.

I do not know of any tree that is easier to raise from seed than is the gum-tree. Of course, they will not stand a cold climate, and sometimes even in California a sharp frost is apt to nip the tips of the young plants. For this reason it is well to start the seed under glass in the fall, and in the spring transplant the little seedlings into shallow boxes, say 50 plants in a box 16x20 inches. When a foot high they may be set out where they are to remain. It is always best to set them out where they are to grow up into trees as soon as possible, that the tap-roots that the tree sends deep into the earth may give it that anchorage required to maintain aloft the large amount of trunk and branches that it may spread out.

For a long time it was thought here the tree would not self-seed in this climate. But since several generations, so to speak, of the trees have been grown here from seed from home-grown trees, it is now found that seed that falls upon any thing like fertile soil germinates and grows into thrifty trees. The finest growth of self-grown trees that I have seen is on the banks of the Temescal, where a hotel had been destroyed by fire. The heat of this fire killed some of the gum-trees that stood near by; but the trees, in dying, shed their seed that was in the seed-cones, some little time after the fire, upon the debris of the ruined building. To-day the spot is covered with gum-trees fully sixty feet high, that sprung from the seed that thus fell upon the site of the burned hotel.

The trees shown in the half-tones herewith are about 20 years old. Those on the hill back of the house in the valley were planted by the late J. Ross Brown, the American humorist, traveler, and United States Minister to China. The tops of the trees in the left foreground are on the bank of the Temescal, and are fully 150 high. The scene of a bit of a gum forest is taken in a grove of 100 acres or so known as Rockridge Park, a private property in the hills east of Temescal. A clearing was made in that portion shown in the left foreground of the photograph a year before it was taken; but the cleared part was soon covered with a growth of young trees or "suckers" that sprang from the stumps that remained in the ground. The gum is like the California redwood in this, that it is a hard tree to kill unless it is rooted out.

By looking carefully in among the trees in the center of the photo, just above the upper fence, two cords of wood may be seen piled up. This forest is being thinned out so as to give the remaining "bean-poles" a chance to become good-sized trees.

Quite a trade is carried on in Alameda County by persons who cut and sell blue-gum wood for fuel. There is a company in Oakland that secures the leaves of these trees, and, by a patented process, converts the resinous and volatile liquid obtained therefrom into a preventive for the incrustation of steam-boilers.

I have found that the leaves and bark, especially the strips that the trees voluntarily shed each year, are an excellent fuel for bee-smokers. The aromatic odor of the smoke seems to have a salutary effect in quieting bees, and the odor is not unpleasant to the apiarist after he becomes used to it. The smoke of the leaves is recommended by physicians for the cure of asthma.

The numerous varieties of the eucalyptus have an extended period of florescence, and it may be possible to plant half a dozen varieties and thereby obtain a continuous succession of flowers the year round. Some varieties are said to bloom twice a year, though I have not noted any doing so. I have seen some blooming a few months after the tree last ceased its round of inflorescence. The two varieties common in the central portion of the State, the varieties already named, bloom for a good part of the year, and, as stated, at a time when honey-secreting flowers are most needed for the bees.

The blue gum, the flowers of which are shown in the illustration, usually begins to expand its petals or anthers in December, and I have known it to continue in flower for five months. One may well imagine the amount of flowers a tree 150 feet high will produce. At the writer's home on the Temescal, a few miles north of the city of Oakland, are several blue gums and one red gum (the tops of two of the former are shown in one of the scenes in the cut) that are probably over 150 ft. tall. One of these trees has a diameter a little over 3 ft. As these trees will grow much taller for some time, they are beginning to fill out in girth. They are nearly 25 years old.

The flowers begin to open on the sunny side of the tree, beginning usually on the branches nearest the earth, and gradually extending upward and about the tree. The whole of a tree is never in bloom at one time; neither are all the trees of the same variety in a period of florescence at the same time.

The flowers of the blue gum are about 2 inches in diameter; those of the red gum, about ½ inch; but they are much more numerous, and are borne in clusters of twos and threes. These flowers are rich in nectar. A gum-tree in bloom is a veritable paradise for bees. They just swarm amid the flowers.

Generally speaking, the chief aim of the bee-keeper is to sell his honey at the highest price possible. To do this his honey must approach nearly a water "whiteness." Yet there are times when honey is of more value to the apiarist than when it is of the character mentioned. This is true in a great measure of eucalyptus honey. The honey is, so far as I have been able to learn from experience, dark, and, when well ripened, thick. Its taste is aromatic and slightly unpleasant, partaking of the tannic and resinous properties of the fluid secretions of the body of the tree. This honey is said to possess medicinal virtues.

The value of this honey to the apiarist lies in the fact that it is produced at a time when his bees are generally sorely in need of winter or early spring stores. One of the greatest causes of loss of bees in this State is the open winters, during which time bees consume much honey, and have little or no chance of gathering any, owing to the want of a supply of native or other flowers at that season of the year. The eucalyptus is the only tree that flowers in California during this period, except the bay, or laurel, which is more of a pollen-producer, as it is not known to yield honey. For this reason the family of eucalypti is a boon to the California apiarist.

I do not believe that the honey will ever prove of any merchantable value to the honey-producer unless it is discovered to have some special medicinal properties. But as a means of keeping weak colonies from starving, especially where the owner does not feed his bees, and for promoting early brood-rearing, so that the colonies will be in strong condition when the harvest of light-colored honey is ready for the bees, the eucalyptus is of inestimable value.

Where the bees have been able, by being close to a gum-tree grove, to gather a surplus, it may become necessary to extract this honey in the latter part of April, otherwise the bees may, as I have known them to do, carry this honey from the brood-chamber up into the supers.

I would advise bee-keepers in all parts of the State, where it is not too cold, to set out all the young trees of this great honey-producer they possibly can. Besides being valuable to them for the nectar it will afford their bees, they will find it valuable for shade, windbreaks, posts, fuel, and other purposes that will suggest themselves.

North Temescal, Cal., March 25.

HOW I SOLD HONEY.

SOME OF THE DISAGREEABLE FEATURES OF THE BUSINESS; A VERY INTERESTING ARTICLE.

By Alice Harding Crossman.

We had a large crop of honey on hand, and I felt sure we could sell a quantity at the house if people only knew we had it for sale.

I persuaded my husband to put up a sign, so he nailed up a large board on the gate-post, "Pure Honey for Sale, 10 cts. per lb." I was in ecstasy. Now I felt sure we should sell honey.

We lived on a main road not far from the city. I waited patiently for some one to buy honey. "It will take a little while to advertise," I surmised. It was delightful to imagine money coming in for honey.

My husband was away during the day, so I felt I had the business to myself. One morning, when I had the busiest day before me, and things seemed to pull backward any way that particular morning, my baby was sick and my head ached. But I was trying to hurry, when I heard a knock at the front door. I opened it, and there stood a little boy.

"Got honey to sell?" he asked.

"Yes, we have honey."

"Well, I want a dime's worth, but ain't got nothin' to put it in. I want to hunt bees." I hunted a can and gave him the honey. This took quite a while. When I returned to the kitchen I started with new energy at my work, when knock! knock!—some one else. I opened the door. This time it was a young man in hunting costume. He took off his hat and said, "I should like to get some honey."

He wanted thirty cents' worth to take on his trip. A few moments was taken in directing him. Then I went back to the kitchen. "Oh!" I thought, "I wish people would not come until I get my work done." I left the dishes, and prepared to churn, for the butter must not be neglected. I was just taking the butter from the churn, when there came a continued rapping at the door. I hastened to open it. An old man glared at me a moment, then said, "I see you have honey for sale."

"Yes, sir."

"Ten cents a pound?"

"Yes, sir."

"I want to see some of it."

"Very well; I will bring you a sample."

I hastened through the house on out to the honey-room to get some honey. "Why did a man leave his honey so far away?" Then I remembered I had never asked my husband to bring any sample honey to the house. I drew some and hurried back to the house, and found that horrid old man in the kitchen. I felt afraid of him, but bravely handed him the bucket of honey and a spoon. But he ignored that spoon, and sent a long brown finger down into that bucket. He stripped it to his mouth, smacked his lips, then dived into the bucket again. I could not stand that. I hastily drew the bucket away. After he had licked his finger clean he said:

"I want some of that honey, shore and certin; have you got any thing to put it in?"

I felt anxious to get rid of him. "Yes; we have buckets. I can sell you one."

"But I don' need any buckets," he said, glaring at me.

I then tried to explain that, if he would bring the bucket back, I would refund his money. He didn't seem to hear me. He was looking about him. I thought he had forgotten me, when he turned on me and said:

"You could put it in a jar, a glass jar, couldn't you?"

"Yes," I answered, not knowing what he was going to do. Without a word he stalked out of the house.

"Great Scott! what should I do?" I thought I would go and see what had become of him. I stepped to the front window in time to see the old man take a half-gallon Mason jar from his old buggy. It was filled with sweet milk. He hesitated, turned the jar around, and looked at it as if undecided. I stood and wondered what he was going to do. At last he had settled the question in his mind, for he removed the lid and tilted the jar and began to drink. I laughed aloud. It did look too funny. He drank half of the milk, then seemed undecided whether he could finish the rest. After looking all about him he scrutinized the jar again. After some hesitation he proceeded to empty it into the same gullet. I can never keep from laughing when I remember that sight. He was coming back to the house. I went to the door, thinking perhaps he would not come in; but, no—he followed me back to the kitchen. He spied the butter. He began to ask questions.

"That's shore fine butter. What do ye feed yo' cows?"

I told him.

"How many cows have ye got?"

"One."

"You didn't make all this yer butter off'n one cow?"

"Yes, sir, we have only one cow."

"How much milk did ye have?" he asked, tipping the barrel churn.

"I churn the cream; this is the milk, I said," pointing to a jar. "How much honey did you want?"

"Hey!" He looked at me, then continued: "Oh! you must be mistaken; you couldn't get that much butter off'n one cow."

"I will get your honey," I ventured to say.

After more quizzing he followed me out.

"That jar is clean," he protested, when I started to wash it. "Yes," he continued, "of course it's clean; it only had sweet milk in it."

"But wouldn't it spoil the honey?"

"Wall, may be so; yes, wash it. Now fill it full," he said.

"It will hold fifty cents' worth."

"I don't care; I want it full."

After a long time I had the pleasure of seeing him get into his buggy. It was after twelve o'clock. The baby's fever was high, but I hurried as fast as I could. Company came in directly after dinner. As they were leaving I fancied I could get something done. I was hardly at my work when I heard a knock. Two well-dressed ladies this time.

"Will you come in?" I asked, as they did not state what they wished. I noticed they had a small five-pound lard-bucket. They entered the parlor.

"We came to see about buying some honey; have you nice honey?"

"Yes, we have extracted honey."

My fancy took up the theme. Now I was going to sell, oh! perhaps a great quantity."

I tried to look as sweet as honey, as I was so very glad I was about to sell some. I would show my better half that it wasn't "useless" to put up a sign.

"Let us see some of your honey," one woman said.

I hastened out and brought back a sample. They tasted, and bragged and commented. Oh, I was so delighted! I was thinking what I would tell my husband. They tasted again, then fell to discussing how much they would take.

"You can get some this time, Lura, and I will get some next time."

"Well, all right," Lura answered.

"We will take ten cents' worth. I brought a bucket."

My feathers fell. When I came back with the honey they were looking at the photographs, and every thing in that room was examined. Supper-time was at hand. Why didn't they go? I found they were in no hurry. I felt desperate.

"You will have to excuse me; my baby is sick, and I have my work to do," I said, rising from my chair in what I intended for a very suggestive manner.

"Certainly," they both said.

"Is the baby much sick?" Lura asked.

"I declare! I never dreamed you had a child, you look so young."

"I am not old enough to have very much sense."

"Oh! you really look so young; don't she, Ida?"

I looked around me.

"Yes, I can't do my work and entertain company at the same time." I had no thought of leaving these two women in that room alone. "My husband is coming. I think he will want his supper."

"I expect we had better go, Lura," Ida suggested.

With much adieu they departed. I wished I had been a large commanding figure about that time. I felt I would at least make people understand I was not playing housekeeping.

"What success?" the partner of my joys asked when he came in.

"Not much success, but I guess it will be different to-morrow."

When I told him about the old man and the jar of milk we had a good laugh together.

I will get a good start in the morning, before any one comes; and I did get the dishes washed when I heard a loud knock. I hastened to the door. "I want to get some honey."

"Yes, sir; come to the honey-house."

The man followed, saying, "I am in a hurry."

He sampled the honey, and bought a dollar's worth. I was filled with new hope. I reached the kitchen. A knock? Yes. A girl wanted a pound of honey. She came in and kept me from my work. It was not long until I opened the door and found a peddler. He tried to sell me soap, or exchange for honey. At last I shut the door in his face.

To be continued.

DRAWN COMBS.

COMB AND WAX; THE MELTED-BUTTER ARGUMENT SIFTED; THE HEAVIEST BLOW AT THE COMB-HONEY MARKET.

By C. C. Miller.

If I remember correctly, it was A. I. Root who first advised taking a super or one or more sections in which bees were at work, and giving them to another colony that was slow at getting to work in sections. Bees and all were to be taken. Then I think it was G. W. Demaree who said bees would start work in supers if in the supers were put a section each that was partly filled with honey, no matter when it had been filled, and no bees need be given with it. Possibly I misunderstood him as to the necessity of having honey in the section; but that was the way I understood it, and it was not for some time that I discovered, perhaps accidentally, that neither bees nor honey was needed. All that was necessary was to have sections containing comb that was partly or wholly drawn out, and from that time I have always used one such in the first super of the season given to each colony, giving such section the name of "bait" section, or merely "bait."

At one time there was a wide divergence of opinion as to the advisability of using unfinished sections, some insisting that the bees would commence on the raw foundation and fill and seal the sections before the baits were filled, that the honey was of poorer quality in them, and so on. The character of those making these objections was such that there was no doubting that in their cases the objections were well founded. The one objection I can easily understand; for if in the bait the least speck of honey from the previous season is left, the granulation will affect the new honey stored. That the bees would be slower at filling the bait sections than the other ones, I can not possibly understand, unless it be that the sections had been left on the hives unused so late in the season of the previous year that the bees had varnished the foundation or comb with propolis. I have, unfortunately, had a large experience in deciding which sections would be sooner accepted and filled by the bees. In different years of failure of the honey crop, I have put on supers containing bait-combs, and the baits have been filled and sealed, and the sections with foundation left untouched. Not merely an occasional case, but hundreds of them. Just the one section in the super was filled and sealed, and the others left as empty as when put on.

I have seen it stated that, when unfinished sections were used, they should be cut down or leveled down until the cells were not more than $\frac{3}{8}$ of an inch high, the idea being entertained that B. Taylor used his Handy comb-leveler simply for the purpose of having cells not so deep. I think this is an entire mistake. I am not positive about it, but I *think* Mr. Taylor used the leveler for the sake of removing any objectionable part, no matter how deep the cells might be. If unfinished sections have combs that are drawn out full depth, there will be a variation as to depth; and when these sections are used over again there will be places where the comb will come so near the separator that the bees will bridge between. So the comb is leveled down enough to avoid the possibility of having the sections thus spoiled.

Another reason for leveling down, and the principal reason, perhaps, is that the unfinished sections are those generally that have been on somewhat late in the season, when bee-glue is plentiful, and having been left on for at least a short time after the cessation of the honey-flow, the bees have laid a rim of glue about the mouth of each cell. Such sections would be unfit to use without first removing this rim of glue, and the removal is quickly effected with the leveler. Except for these two reasons I would not cut down the depth of the cells. If it's a good thing to have the cells built half, it's a better thing to have them entirely built out. For bait combs I always prefer those built out as much as possible, only so they are perfectly clean and white, and will not come close enough to the separators to be bridged.

It may be said that, with such deep cells, the honey will not be evaporated so quickly as in those more shallow, and there may be a very little in this. But if that is any argument in favor of cells ⅜ rather than ⅝, it is equally an argument in favor of ⅛ rather than ⅜.

The question as to how much more honey could be secured by having drawn sections than by having merely foundation is one not easily settled. Great difference of opinion prevails as to the difference between the amount of comb honey and extracted from the same colony, some saying nearly the same, and some saying three or four times as much extracted as comb. Whatever the difference may be, it seems there ought to be nearly as much honey obtained in drawn combs in sections as of extracted. If the cells are of the same depth in each case, and the extracting-combs are sealed before extracting, there ought to be no difference.

Interest in this whole matter has been freshly aroused by the advent of the new foundation with side walls ¼ inch deep or less. I confess that I have not been so enthusiastic as some in thinking this new product will be of such immense advantage.

A year or so ago I received from Germany a sample of comb made by machinery, the cells being of full depth, and German bee-journals seemed quite jubilant over it. It was so heavy that there was no thought of using it in any thing but brood-combs; but it took so much wax as to make a brood-chamber full of it rather expensive. So little has been said about it since, that I doubt if it has gone, or, indeed, ever will go, into general use. The sample I have received from The A. I. Root Co. is a marvel of delicacy compared with the German sample, yet before we know how much advantage it will be we must know at what price it can be had, and it must be fully and fairly put to the test.

There is probably no question that, in general, bees will store more honey in old combs than in combs that must be wholly built as the storing is going on. And the nearer we come to furnishing complete combs, the more we help the storing. But cells ¼ or ⅜ deep will not be as much help as cells of full depth. Even if wax enough be furnished to make full-depth cells, it isn't easy to figure how much the drawing out will cost the bees.

Again, it is a problem whether under any and all circumstances the bees will thin down the cells to natural thickness. While in some cases it might be profitable to pay $5.00 a pound for drawn comb to be used as bait, a single section in the first super of the season, it by no means follows that it would be worth any such figure to fill the whole super. After the first super, bait is perhaps of no value: for when an empty super is put under one partly filled, there is no trouble as to bees commencing promptly to fill the empty super if they have any thing with which to fill it. All these things must be taken into consideration in trying to settle upon the real value of the new invention.

Another thought presents itself. Suppose every thing goes according to or beyond the highest expectation of the most sanguine, and just as much comb honey can be produced as extracted, comb honey not requiring the special skill for its production that is now required, the producers of extracted honey will largely turn to the production of comb honey. That will lessen the amount of wax thrown on the market, increasing the price of foundation, and the greater amount of comb honey will at the same time lower its price. Will those two changes be a distinct advantage to the present comb-honey producer?

While I think it wise to look on all sides of the question in considering what may be the real value or lack of value to bee-keepers, of foundation having side walls much higher than at present made, and while I think it may be wise to be somewhat conservative in one's expectations, I do think one ought to be entirely fair; and some of the objections raised seem not only unfair but against the real interests of bee-keepers. It might be fair to say, "I don't believe it will do to give bees side walls of greater depth than are now given, for they can not be made as thin as the natural comb, and I'm afraid the bees will not draw them out to the natural thinness," but such an objection, uttered by any fair-minded person, would be followed by the remark, "But it is certainly entitled to a trial; and if, upon trial, we can have by its use just as good comb honey as we now have, then I can have no objection to it." But that isn't the way the matter is treated. The *Review* and *Progressive* teach that the great objection is to the *material* used.

Let us look at the argument of the *Review*. "Comb, natural comb, is of a light, friable nature — like the feathery, new-fallen snow." Now, that reads quite smoothly, and, taken with what follows, would make a novice think himself imposed upon if a bit of foundation in comb honey were imposed upon him. But it is misleading, and I can not help wondering that W. Z. Hutchinson, a man whom I look upon as remarkable for his fairness, should be led into such sophistry. Natural comb is "light." Per contra, we are to suppose that foundation is "heavy." Cut a piece of the side wall of a comb, and then cut a piece of the side wall of foundation of the same shape and size in every way, and isn't one as light as the other? How much more friable is comb than foundation? "Friable," according to the dictionary, means "easily crumbled or pulverized." Natural comb, dried with age, becomes brittle and friable; but freshly built comb, at summer temperature, is soft and yielding—pliable rather than friable. I doubt whether there is a perceptible difference in the friability of fresh comb and fresh foundation. Both become more friable with age.

"Once this snow has been *melted*, it can never be restored to its former state. . . . . In a like manner, once comb has been melted into wax, its character is changed. It is no longer comb, but *wax*." Is it possible, friend H., that you don't know that freshly built comb, made entirely by the bees, without any intervention of man, is *wax*, and nothing but wax? "Butter is butter; but melted butter is grease; so comb is comb, but melted comb is *wax*." I suppose in the strict sense of the term that butter, either melted or unmelted, is grease; but probably the word is here used to stand for something objectionable.

Since writing that last sentence I have had my dinner, and had three kinds of butter—some that had never been melted, some that had been heated just enough to melt it, and some that had been thoroughly heated for some time, and kept above the boiling-point. Tested separately, the last had a distinct cooked taste; but on bread I don't know that it could be detected; and the sample that was merely melted had no change that could be detected. All were excellent; and, living in the heart of the Elgin butter region, I think I know what good butter is. I wonder, when friend Hutchinson quoted that sentence, whether he stopped to think what melted butter really is like, and whether he had often sampled it. Did he ever eat hot biscuit, butter, and honey? If he did, he surely ate *melted* butter, or "grease," as he calls it. Did he never eat melted butter on hot toast, beefsteak, in cake? Do his folks cook asparagus, green peas, and all other vegetables without melted butter? When he eats butter on his potato, does he always manage to keep the butter unmelted?

Now I'll tell you what I think. I think when he used melted butter as an illustration he supposed he was giving an excellent illustration of the difference between wax unmelted and wax after it had been melted. And so he was. And he also thought that the melting materially injured each article. Prejudice in case of the butter, prejudice in case of the wax. Now if he is allowed to sample a piece of bread on which is spread butter that had once been melted, and another piece spread with butter never melted, I don't believe he could tell which was which. Neither do I believe he could detect any difference in taste between a piece of comb honey whose wax had all been melted and one whose wax had never been melted. Of course, I assume that the cell walls should be equally thin in each case, the possibility of which he admits.

The *Review* speaks of "comb honey with its delicious, fragile, toothsome, flaky comb." First and last there has been a good deal of that sort of talk, which, carefully analyzed and properly classified, would probably come under the head of nonsense. Comb is fragile, whether made of melted or unmelted wax; but is it "flaky"? I never saw any of it flake apart; did you? Does the pleasure of eating comb honey come from the honey, or is it the wax that is so "delicious, toothsome"? Here's a section of honey that was cut a day or two ago, and cut in such a way that a good part of the liquid has drained out on the plate. Do you find the drained honey on the plate so insipid that you cut some of the comb that now contains no honey, in order to make the honey "toothsome"? Or if you cut off a piece, do you prefer to cut from the part mostly drained so as to have a larger proportion of the "delicious" flavor? Isn't it a little strange that an article that passes through the digestive organs unchanged, and that is not in the slightest degree affected by strong sulphuric acid, should yet be so "delicious, toothsome"?

But after being melted, this delicious, fragile, toothsome, flaky comb is nothing but "tough, leathery, gobby wax." More than that, not content with being an "abomination," as the *Review* puts it, in and of itself, according to *Progressive* it takes unto itself horrors not of its own originating, in passing through commercial centers. It has consorted with "tallow that has been rendered from animals which have died from disease," and "has a lot of this filthy grease adhering to it. When this wax is melted, this filthy grease that adheres to it while coming in contact with sheep pelts that have been skinned from the bodies of sheep that have died of disease, and the filthy tallow and soap-grease aforementioned, will become a part of it."

Now, suppose there are furnished to the bees cells one-fourth or one-half inch deep, and a consumer has read what is said in *Review* and *Progressive*, have you any idea that you can get him to put such comb honey into his mouth? You say, "No, and he ought not to put it into his mouth." Well, then, I go to him and say to him, "I don't use manufactured comb; I just use foundation such as all comb honey generally contains. It's made of the same kind of material as that other fellow's, but there's only half as much of it in a pound, so you'll have to eat only half as much nastiness." Do you suppose he'll buy an ounce more of one than the other?

Now brethren, in all honesty, if the material used is half as bad as you have painted it, is it right to use comb foundation at all? After we have gone on all these years filling our sections with full-sized sheets, why have you not lifted up your voice against it before? If it was all right to use a certain amount of it, why does the *character* of the material become so very objectionable when it is proposed to double the amount used? If the material is as bad as you say, then let us know it, and let us as honest men use not even the smallest starter in sections.

I am not specially interested in the new product; but along with thousands of others I am interested in the market for comb honey, and I am sorry to say that I believe you have done your share toward striking the heaviest blow at the comb-honey market it has ever received; and this, even if not the slightest change is made in the foundation used. For what you say, if it applies at all, applies to the thinnest foundation that may be made, even without any side walls at all; and let a belief in what you say get a lodgment in the minds of consumers, then good-by to the market for comb honey.

Marengo, Ill.

[See Editorials.—Ed.]

DRAWN COMB DEFINED.

DEEP CELLS, AND THE ADVANTAGE OF SHALLOW CELLS.

Dr. C. C. Miller:—I believe you are our lexicographer of words pertaining to bees and bee-keeping, and I wish to appeal to you for a definition of "drawn comb." The editor of Gleanings, in the Feb. 1st issue, defines: "Drawn comb—comb that has been leveled down to cells about ⅜ of an inch deep." Two other writers, following, seem to agree with this definition. The third writer appears to make a distinction between "drawn comb" and "bait comb." They all refer to *natural* comb made by the bees, and cut down. I don't exactly know how cutting it makes "drawn comb" of it. My idea of "drawn comb" heretofore has been that, when artificial comb foundation was given to the bees, it was drawn out (lengthened) without addition of new wax, or very little of it, and became "drawn comb." If the former definition is correct, what are we to call the last product? Is it proper to call any natural comb "drawn comb"? I have not seen your new dictionary. I have only Webster, and find "drawn butter," but no "drawn honey" nor "drawn comb."

Thaddeus Smith.

Pelee Island, Ont., Feb. 15.

[Dr. Miller replies:]

I don't assume to be lexicographer for the bee-keeping fraternity, having been chosen to say in only one book what was the customary usage of bee-keepers. I have some doubts whether I know enough to clearly define "drawn comb." I think I could point to a specimen and say clearly, "That's drawn comb," and then to another, saying without hesitation, "That's comb foundation." But I'm not so sure that I could clearly draw the line between foundation and drawn comb. As the word is ordinarily used, I think all comb is called drawn comb. Ordinary comb foundation is not called comb, but foundation. Give a piece of foundation to the bees, and when they have drawn out the side walls to the depth of ¼ inch we should probably agree in calling it drawn comb, although we would not call it so when they have just commenced nibbling on the side walls. Just at what point to begin calling it drawn comb is something like deciding on what day we are to cease calling a human being a boy and call him a man. I think the term "drawn" generally adds nothing to the meaning, but is used to give emphasis to the distinction between comb and comb foundation. In a super I put a bait of comb, and you can hardly misunderstand that expression; but by way of emphasizing the fact that the bait section contains comb and the other sections only foundation, I say the bait contains "drawn comb." I should say that the term as used by bee-keepers applies to all comb, whether the cells be two inches or more deep or very shallow. You see I'm a little careful to say "very shallow," without giving any exact measurement. I should also say that the term "drawn" has no reference to whether the sample is natural or artificial.

The editorial remark to which you refer is probably the one on page 78, "What I mean by drawn comb is some that had been leveled down to cells about ⅜ in. deep." Evidently the editor did not mean that as a definition of the term, but simply as explaining the particular kind of drawn comb used in that case, and exactly the same idea would have been given if he had said, "The drawn comb used had been leveled, etc." If he had meant it for a general definition he would have used "has" instead of "had," saying, "What I mean by drawn comb is that which has been, etc."

Messrs. Crane and Snell, to whom you refer, hardly limit the word to comb with cells only ⅜ deep: indeed, Mr. Snell expressly speaks of drawn comb 1½ inches thick—that is, having cells ¾ inch deep. Mr. Crane thinks drawn combs should not be used with cells more than ⅜ deep, but that does not say they would not be drawn comb before cutting down. Mr. Schæffle makes a distinction between "drawn comb" and "bait comb" in the heading of his article, but I suspect that heading was written by the editor. Between the two I think there is no possible distinction as to kind. Every bait comb is drawn comb, and every drawn comb may be used as bait. But there is a distinct difference as to *use*, and I suppose this difference was in mind in writing the heading. Every drawn comb may be used as bait comb; but unless so used it would not be bait comb.

I may remark, in passing, that, while I should prefer bait combs with cells deeper than ⅜ of an inch, I should not want them as deep as Mr. Snell says, ¾ of an inch. From past experience I should expect them to be built more or less to the separators, unless used in sections more than two inches wide. C. C. Miller.

Marengo, Ill.

[Dr. Miller is right in explaining that drawn combs ⅜ deep referred to a particular kind to which attention was drawn. I did not intend to give a general definition. I think Mr. Crane is nearly right in saying that in any case "drawn combs should not be used more than ⅜ inch deep." To use them deeper would make an inferior grade of comb honey. Before bee-keepers learned that unfinished sections could be leveled down *a la* Taylor, and make as good comb honey as that built from foundation, they had come to regard unfinished sections as unfit for use to put back into the super except for bait. Years ago, when the question of unfinished sections in supers was talked over, it was generally concluded that comb honey was of second quality, and that in the end it did not pay. We did not then know that the trouble lay in the full depth of cells. We have since learned that reducing those cells by means of a hot knife or hot plate to somewhere about ⅜ inch deep, and then putting all such sections back into the super again, not only produces a first-class article of comb honey, but that the supers are filled much more rapidly than in poor seasons.

Mr. Weed found that it was possible to make the drawn foundation full depth if necessary; and to illustrate the possibilities of deep cells, his first set of dies showed cell walls nearly full depth; but later on he came to the conclusion that such depth was entirely unnecessary.

For the purpose of avoiding confusion, the A. I. Root Co. decided to call the new product "drawn foundation," which, indeed, it is. To call it deep cell-wall foundation might cause confusion, because we have for years made foundation on the old foundation-mills that was nearly ¼ inch thick: but we never supplied such foundation to our trade, as Americans did not care to pay the price for so much wax. But our customers in Germany have very often sent in specifications for deep-cell-wall mills. For the purpose, then, of avoiding confusion, we called the new product "drawn foundation;" the German foundation, "deep-cell-wall foundation;" and combs drawn out by bees, but leveled down, "drawn comb." As it will be found to be impracticable to use any other than combs leveled down, only this article would be used in the discussion. In the multiplicity of terms we must be careful at the outset to use short ones as well as those that are descriptive.

To sum up, then, the different grades of foundation, we have the "thin" and "extra thin;" the "light brood" and the "medium" (the old "heavy" having been discarded); in Germany, the "deep cell-wall foundation;" in this country, "drawn foundation;" for comb drawn out by the bees, but afterward leveled down, "drawn comb."—Ed.]

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

INCREASE AND EXTRACTED HONEY.

Question.—Which is the better plan when working an apiary for extracted honey—to make the increase by natural swarming or by division? If by division, when is the best time to do it in latitude about forty-one, white clover being the main plant giving surplus?

Answer.—My favorite mode of increase is by natural swarming; and as a general rule I prefer such increase for the reason that I have found that colonies made by division lose much more time getting ready for work than do the bees when permitted to follow the natural laws of increase. But there are exceptions to all general rules, and this is one of these exceptions. Should we desire, ever so badly, increase by natural swarming, it would be very little we should get if the colonies were worked to the best advantage for extracted honey. A good yield of extracted honey is obtained only by providing the colony with an extra set, or more, of empty combs, putting the same in upper stories at the beginning of the honey-flow, or as soon as the bees have increased sufficiently to receive them without any detriment to their building up the most quickly. Bees do not swarm until the hive is well populated and honey coming in from the fields; hence if we put on combs as above (and we must to secure the best results in extracted honey), these combs go on before any preparation for swarming has been made. Ernest Root never uttered a truer saying than he made when he said that "plenty of empty combs is the best preventive for swarming," and by fixing our bees as we are obliged to to secure the best results, we very nearly if not quite prevent all increase of a natural kind.

In all of my experience with the extractor I have never had a single colony cast a swarm before the honey harvest was beginning to wane; and not ten per cent of the colonies thus worked ever offered to cast a swarm at all. Hence we see, if we wish increase, it must be done in some way other than natural swarming, or we must sacrifice our honey crop quite largely by not putting on the combs till the colonies have swarmed. Hence we have increase by division, where increase is wished, as the only way when working for extracted honey.

Having decided this question, the next thing which confronts us is, "When is that division to be made?" Very many of our most practical apiarists tell us that, where we make increase by division, this should be done a little before the honey harvest, or at its commencement. The *why* of such advice, I have never been able to understand. It is argued that, after the division, you would have two queens laying instead of one; and in this there is great gain. But such reasoning as this is mysterious to me, for the bees which hatch from those eggs laid by the two queens after the division can never become honey-gatherers in the white clover-honey harvest, unless said harvest is much more prolonged than it ever is here; so the bees raised from the eggs of the extra queen will only become consumers, without adding one iota to our crop of honey. Yea, more: instead of adding to the crop of honey it will lessen that crop by just the amount that it will take to feed and nurse the brood and the young bees after hatching, which is a clear loss to us.

Then, again, all admit that one *strong* colony will store far more honey when kept together, it not having the swarming fever, than the same colony would if divided and placed in two separate hives, thus making two weak colonies of it. Hence, by dividing at the commencement of the honey harvest, or a little before, we have two weak colonies to do the gathering, up to about the time the harvest closes, instead of the one very strong one; while after-results from fall flowers are no better for an increase at this time. Still again: By such division we shall have many combs from half to three-fourths full of honey to extract from during the season or at the end thereof, instead of little if any more than half the number of chockful combs which will yield bountifully of honey every time we put them in the extractor. Hence we have very much more work in the extracting arising from this division, just before the honey harvest.

For these reasons my plan has been to work the colonies as above given till very near, or just at the close of the harvest, when I go to work and make what increase I wish, by dividing as many of the colonies as I wish increase.

If any happen to swarm near the close of the honey harvest, or at any time during the latter part of the same, I accept their increase as far as they do so, thus lessening the number desired, according to the number which swarm. About ten days before the honey harvest will naturally close, I start queen-cells in upper stories (the colonies thus used for cells should have a queen-excluding honey-board between the stories), according to the plan given in "Scientific Queen-rearing," to the needed number, these queen-cells being built without any detriment to our honey crop, as the old queen is still doing duty below; and when these cells are ripe I proceed to divide the required number of colonies by an equal division of brood, bees, and combs, allowing the old queen to remain on the old stand, and giving the nearly mature cell to the part removed, twenty-four hours after removal, when they will readily accept the same without using any precaution against the bees tearing the cell open and destroying the young queen.

If queen excluders are used between the two stories of each colony, as I think it well pays to do, then I like this plan a little better: Four days before I expect to make the division I go to the hive and raise the more nearly mature brood to the upper story; and if I see the queen I leave her below; but I take no special pains to look for her. At the end of the four days I take a look at the combs; and if the queen is in the upper story it will be revealed by there being eggs in the combs. If there are no eggs found I insert a queen-cell and let the hive stand as it is till near sunset, when I take off the upper story and carry it to where I wish it to stand, and the division is made. If eggs are found I hunt out the queen and let her run in at the entrance below, and at night carry the upper story to a new stand, giving the cell 24 hours later, as I did by the first plan, as the bees having a queen in this upper story would be likely to destroy the cell if no precaution is taken. If I do not readily find the queen, where one happens to be in an upper story, I either shake off the bees in front of the entrance to the lower hive, or shake the bees off their combs into the upper hive, smoking the bees down through the queen-excluder, when the queen will be easily found trying to get through the zinc. If I wish to catch the queen I use the latter way; but if I only wish to have her in the lower story, the first is the more quickly accomplished.

Heads of Grain from Different Fields

PETTIT'S METHOD OF PRODUCING COMB HONEY; PERFORATED FOLLOWERS.

Will you kindly refer back to page 52 of the present volume of GLEANINGS to that part of the article by Mr. S. T. Pettit, beginning, "But there is another new and valuable feature to be described"? Read to the end, and I think you will conclude, as I have, that Mr. Pettit expresses it well when he speaks of this feature as "new and valuable." I have scanned closely all articles in GLEANINGS and the *Amer. Bee Journal* for a good many years; but, so far as I can remember, this is the first time this simple but practicable idea has been placed before the bee-keeping fraternity. The more I think of this suggestion the more it grows in importance, until I feel impelled to revert your attention to its sterling worth. Not only so, but, original and weighty as this feature appears, I was somewhat disappointed to find that, in your footnote, you failed to give it even a passing notice. But what is this new feature? If I understand Mr. Pettit aright, it is simply a thin piece of perforated wood, the size of an ordinary separator, placed on the outside row of sections, and a bee-space from the side of the super, held thus by ¼-inch strips. This "divider" admits of two bee-spaces and the clustering of the bees therein, while the ¾-inch holes allow of easy access to either side. With this feature applied, the bees will be able to ascend along the sides of the hive from the bottom-board to the top of the uppermost supers.

This device is easily and inexpensively applicable to the dovetailed super. As now arranged, the follower and wedge occupy a half-inch space unused by the bees. By substituting a piece of perforated zinc for the 5/16-in. follower, presto! a bee-space is secured on both sides of the super; ¼-in. strips, 4½ in. long, three to a side, one at each end and one in the middle, stood upright, to be used as wedges. So much confidence do I place in the likelihood of this new contrivance enabling the bees to fill and finish the outside of the outside sections in an ordinary flow that I have decided to give it a thorough test the coming season. The long wedge with which to raise the hive and guide the bees, described in the first part of Mr. Pettit's article, is good; but the perforated followers, securing a double bee-space, warmth, clustering, and free communication, while avoiding brace-combs and bulging, is the latest and best. Like many another invaluable idea, it seems so simple, withal, that we are forced to exclaim, "Why didn't I think of that before?" I believe the progressive bee-keeper who adopts this happy hint will be a great gainer thereby; and we all owe Mr. Pettit a debt of gratitude for the generous way he has given this advanced idea to the public.

Wadena, Ia., Mar. 12. Geo. G. Scott.

[I noticed the idea of the perforated follower; but as practically the same sort of device had been used before, I did not refer to it particularly. Perforated separators have been used between sections and next to the outside rows with a bee-space on each side of the separator. I can not now point to the page where such is illustrated in our older literature; but our British cousins have long used the arrangement. The only difference, if any, is that the perforated strips were used *between* the rows of sections, as well as on the outsides. But, even if old, this would not in itself make the idea any the less valuable. It struck me, however, that the slanting bottom board has the more important of the two ideas advanced by friend Pettit, and so I referred to it particularly in the footnote. I am glad you have called particular attention to the other idea, as do doubt it needs more emphasizing than it received on page 52.—Ed.]

HEAT FOR BEE CELLARS.

I see in A B C of Bee Culture that you recommend lamps for heating bee-cellars; but as the physiology says that a common lamp uses as much oxygen as 12 people, I should think enough more ventilation would be required to make up for the extra heat of the lamp. I tried a lamp in my cellar, and had it well shaded, and a good burner on the lamp; but it seemed to disturb the bees, although there was a door between them and the lamp. This I ascertained by listening through the ventilation-hole on top; and I could smell the gas mixed with the bees' breath. Is there any danger of keeping the cellar too tight if the temperature inside does not go above 35 or 38°?

Galt, Mich., Jan. 5. Fred B. Cavanagh.

[As Dr. Miller has had more experience than we along these lines I asked him to reply.—Ed.]

A lamp or oil-stove should not be used to warm a cellar unless there is some way of carrying off the gases that arise from combustion. A can or jug of hot water is entirely safe provided the water is corked in so tight that no vapor escapes. But if you use a common five-gallon tin can, with boiling water corked tight, it will spoil the can; for when the water cools the sides of the can will cave in—that is, in case the can is only partly filled. If filled *full* there will be no trouble. "Stoves in the cellar have probably done more harm than good," as stated in A B C; but there are those who have had much experience in their use, who insist that the harm has always come from the wrong kind of stoves, as oil-stoves without chimneys, or else wrong use of the right kind of stoves.

There is not often much danger of having a cellar too tight, for there are usually enough cracks and chinks for the air to pass through; but there is danger from cold if your cellar continues from 35 to 38°. Better warm it up some way. C. C. Miller.

REPORT ON CRIMSON CLOVER IN YORK STATE.

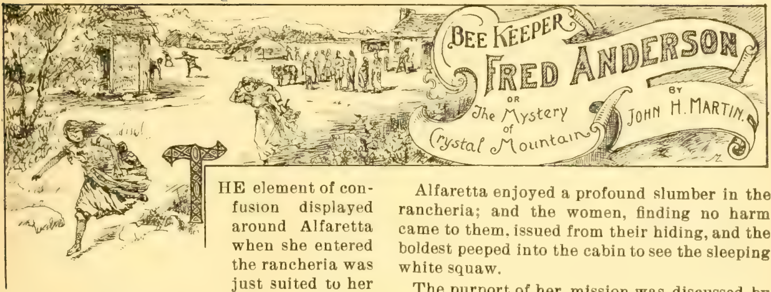
Your report on crimson clover, Mar. 15, reminds me of my own experience with it. I have had it freeze out completely; but last year, the middle or latter part of July I sowed a piece of it with buckwheat, and have to-day as perfect a stand of it as could be desired. The fall was favorable for a good growth, which it made, completely covering the ground, and even in several comparatively wet spots, where it would winter-kill if anywhere, it is growing nicely, and is probably out of danger at this writing, March 22. I think the principal cause of my failure heretofore has been to sow too late, not getting a perfect mat of leaves before winter set in. C. Weckesser.

Sanborn, N. Y.

DRAWN COMBS AHEAD.

In regard to using drawn combs in boxes I have the best of luck with them. I generally put one-half drawn combs and the other half foundation, and I always find the drawn combs filled first; and I have often wished that full combs could be made for surplus and brood-chamber. I think I should rather pay more for the same. G. S. Brown.

Salisbury, Vt., Feb. 19.



BEE KEEPER FRED ANDERSON

OR

The Mystery of Crystal Mountain

BY JOHN H. MARTIN.

THE element of confusion displayed around Alfaretta when she entered the rancheria was just suited to her mental condition. The people were so different from those she met in her home life, and appeared so frightened, that she hastily dismounted from her pony and gave chase to the nearest squaw; and it is needless to say that the "confusion was worse confounded." There was a stampede of nearly the whole population. In their minds the ancient tradition was about to be verified. The white squaw had arrived, and to snakes they were to be changed. The older men, however, collected in a group and awaited with much show of dignity whatever ordeal might be practiced upon them.

Failing to catch the squaws, Alfaretta approached the group, flirting her riding-whip toward them, shouting, "Shoo, bad men, shoo!"

"We no bad men," said the chief. "We much good Indian. We no kill, no scalp white man; much good, much good Indian."

"You good Indian?" said Alfaretta; "then tell me where is Fred Anderson?"

"Fred Anderson?" said the chief, shaking his head; "him hard case to find. Him way up mountain; you see him some time. Go rest in wickiup, white squaw; we much good Indians."

The idea of rest was a proper one for Alfaretta to entertain. The violent ride and excitement had left her very weary, and a cabin and a cot were gladly accepted, and she was soon fast asleep.

Since Dr. Hayden had been confined so closely to the valley he had instituted a novel mode of communication with the Indians. Upon a prominent point upon the rim of the valley, and on the side nearest the rancheria, he had placed a vigorous colony of bees. This colony sought nectar from the flora outside the valley, and the doctor instructed the young Indians to observe closely their movements; and if he was urgently needed outside the valley they were to dust flour on several bees; or if there was danger threatened, they were to use a red pigment. By a combination of colors the doctor worked out a good signal-code; and upon the afternoon, soon after Alfaretta's arrival, the colors read, "Meet parties at the entrance; danger."

Alfaretta enjoyed a profound slumber in the rancheria; and the women, finding no harm came to them, issued from their hiding, and the boldest peeped into the cabin to see the sleeping white squaw.

The purport of her mission was discussed by the older Indians, and two of the older squaws were delegated to escort her to the valley, while, aside from the telegram over the bee-line, two Indians were sent to the valley in the early evening to consult with the doctor. Before the squaws left the rancheria that night the Indians had seen enough of Alfaretta to know her mental condition, and their fear of a few hours previous changed to pity. Their conversation denoted solicitude for her welfare, and that Neo-a-ho-a, their great medicine man, should exorcise the evil spirit that possessed her.

Alfaretta upon her pony, and the two squaws trudging beside her, entered the mountains through a blind canyon a little past midnight. Dr. Hayden, with the two Indians, was awaiting them in an obscure retreat near the great balanced rock that guarded the entrance to the valley.

Gimp Dawson had encountered various episodes in his day's journey, and, but for the contrariety of old Jake, he would have overtaken Alfaretta at Covelo. Here Prof. Buell and Joe Splinter found him; and the snarl of questions with which Gimp was trying to tangle the saloon loafers was soon made plain by Prof. Buell, with the result that the man Jim, locally known as Slim Jim, and Pete Armstrong, who made it his business to hunt, with loaded rifle, for the mysterious man of Crystal Mountain, made two more willing additions to the search party, and young Armstrong, after an unsuccessful search at the Indian rancheria, led the party directly to the old cabin in the obscure canyon. Here they camped, and posted their watchers at various points. Gimp, the youngest and the most inexperienced, was posted in a little obscure passage opening nearly behind the big balanced rock, and ending, apparently, among the boulders beyond. "There, youngster," said Slim Jim, "ye can take a nap, for nobody'll disturb ye in there."

All was quiet about the mountain; for in these solitudes, as night deepens, not a chirrup of a bird, the piping of an insect, nor even the rustle of a leaf, is heard.

Gimp sat in the dark, listening to his own heart-beats so long that he became drowsy, and finally fell asleep. Alfaretta was escorted to the valley's entrance through this very intricate and obscure passage. Silently each one of the escort glided along. Dr. Hayden had met them at a point some distance out, and guided their movements. When he found Gimp asleep he stood beside him. motioning the rest to pass. All had entered the dark passage under the rock, and Dr. Hayden was about to leave Gimp when the latter sprang to his feet and was about to shout. The doctor's strong hand was placed over his mouth, and he too was hurried into the passage. But Gimp was strong and active, and, getting advantage of the doctor, he shouted at the top of his voice, "Help! help!" His mouth was this time bandaged, and the great rock fell to its place with a crash, and Gimp was lost to his companions.

They heard the shout, and the crash of the rock; but the keenest search failed to reveal the least trace of poor Gimp.

In the morning Alfaretta's saddle was found half a mile down the valley; but neither Jack nor the rider was to be found.

Prof. Buell's feelings can better be imagined than described, and he was not consoled by the tales of Slim Jim and young Armstrong, for they painted the mysterious man of Crystal Mountain in hideous colors.

For several days the mountain passes were searched as they had never been before. Prof. Buell even essayed to cross that terrible obsidian barrier, but with only one result—deep gashes in his feet and legs. He finally gave up the search, and returned to his home, with a sad heart, but with the hope that is always in the heart of a Christian—that all will be well.

In the morning, when Fred Anderson heard the well-known song, and realized that Alfaretta was in the valley, he quickly sprang down the terrace and was at her side.

"Alfaretta!" said he with deep emotion.

"Ah! this is Fred Anderson," said she; "my mermaids told me where to find you—away, away up the sunny mountain. We will part nevermore—nevermore."

"Oh that she were sane, how gladly would I listen to such a prophecy!" said Fred half aloud. "But, Alfaretta"—but Fred was interrupted by the approach of one of the squaws, who said, "Neo-a-ho-a am in cabin. Him feel bad. He no like white squaw. You best see Neo-a-ho-a;" and she turned an obsequious attention to Alfaretta, who led the way up the terrace, singing her song and collecting the beautiful flowers that hung in profusion on every hand.

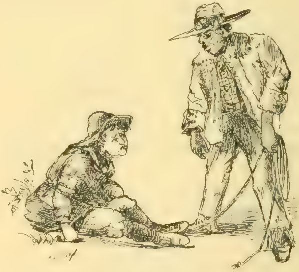
Fred hastened to the doctor's cabin. The latter sat in deep abstraction. He noted not Fred's entrance. Tears were flowing from his eyes.

"Doctor," said Fred, gently; but there was no movement. Fred realized that something of unusual interest was upon the mind of his friend, and he stepped softly out of the cabin again and strolled down to the little stream that ran through the valley. Upon nearing a clump of oaks he heard Sam talking in a consoling way to some one. "Now, honey, you shouldn't cry. You's in de mos beautiful valley in de whole world. See de red posies, de blue posies; see de rocks, de trees, de sparklin' Wis-ton-we; and jus' see me, de brack posy."

"Darn ye and yer posies, yer dirty Injuns an' yer squaws. Le'me go, will yer?" and there was a struggle.

"Why, Gimp Dawson," said Fred, as he hastened through the bushes. "Gimp, you here? Sam, what have you tied that rope around him for?"

"You see, Mister Fred, this young kid wants ter own dis hyar whole valley. He's had more'n forty tantrums this mornin'. I spect he's got to be reconciled."



"LE'ME GO, WILL YER?"

"Well, Sam, take off the rope. Here, Gimp, you know I am your friend. Alfaretta and you and I are all in this valley now, and we must make the best of it until we can get out. Sam is a good fellow, and will treat you well."

"Don't want nuffin' to do with the nigger," said Gimp.

"Don't hurt yer feelin's a callin' me names, honey. Tain't de color ob de skin dat makes de man; it's de actions. But, Mister Fred," said Sam, suddenly, "I wish ye'd go up to de cabin an' rouse de doctor; he eats no breakfas', an' sits a gloamin' an' gloamin'. Dis hyar white gal has a strange effec' upon him. Jes as he was a joicin' about a bachelor's paradise dis gal pops in to spile it."

After giving Gimp some further advice, and telling him to see that no harm came to Alfaretta, he again went to the doctor's cabin.

"Doctor," said he, bruskly, as he entered, "I see that you have visitors this morning."

"Yes, yes," said the doctor, slowly; "we have visitors, a visitor, and, Fred, do you know the lady in white?"

"Yes, doctor, she is the lady we have talked about so much. Her name is Alfaretta Buell."

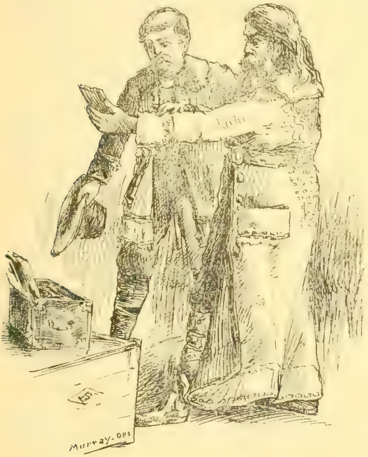
"Fred Anderson, you are mistaken. You have been deceived;" and as the doctor arose and paced the floor he said, in terrible earnestness, "Fred Anderson, that young lady's name is Alfaretta Hayden—my long-lost daughter."

"No, doctor," said Fred, with equal earnestness, "you can not mean it. Your daughter, doctor—ha, ha! are we all going crazy? are we dreaming?"

The doctor stepped across the cabin to a little cabinet, and took from an inner recess an old-time ivorytype; "look upon this picture, Fred."

"Alfaretta, for sure," said Fred.

"Alfaretta's mother," replied the doctor. "Now, Fred, sit down. I must talk. Let me tell you the story of my life. I believe I have told you that I was born in Western New York. The farm adjoining ours was owned by my uncle, Wm. Bull. His son Clarence was about my age, and we were always fast friends, and were always together until we graduated from college. Our ways parted then for a time. I went to Germany to finish my education in medicine, and he to the far West as a surveyor. The civil war brought us together again—I a surgeon and he in an engineer corps. We escaped the dangers of war, and returned to our paternal homes. We longed for the quietness of home life, and, soon after our return, we both found suitable companions, and settled down to a happy domestic life—Clarence a teacher, and I in the practice of a country physician. Perhaps our lives were too full of joy. Our homes were the scenes of happy gatherings, and the sunshine of love filled our cozy homes; but in the midst of this happiness the storm lowered, and in the birth of Alfaretta the life of the one I loved went out. Ah, dear Fred! little do you know of the sorrow in losing one so near and dear as a wife. No more the face greets you at the window; the smile that gave the heart a stronger throb of joy is now only a memory; where there was cheery presence, laughter, song, all is still. In the deep silence of night, in some lonely trysting-place, I uplift my clasped hands and cry, 'O lovely spirit! dear one, come and whisper words of love and hope to me; clasp my hand; let me but feel thy presence.' The summer breeze stirs the foliage above me, but there comes no answering word—lonely, so lonely; and when I retrace my steps to that desolate home, an unrest seizes me and I would haste away to the far corners of the earth. The young life that had come into my home under such sad circumstances was taken into the home of my bosom friend, Clarence Bull. Their little Adrietta, after a few months of life, had died, and Alfaretta found a warm welcome there. It is needless for me to tell you that, from the hour of the death of my wife, I became a wanderer. I first went to Mexico, then to Peru. I became a prominent factor in one of their periodic revolutions, and upon the defeat of our party I was sent far into the interior, and for several years had no communication with my distant kindred. When I did return to my old home, things had greatly changed. My cousin Clarence had moved to Denver; thither I went in search of him; but he had left his position there under a cloud—some scandal connected with his school, and no trace of him could be found until I met you. But the changed name misled me. His wife's pride, or perhaps the scandal, led to the change.



"LOOK UPON THIS PICTURE, FRED."

"I have had some bitter feelings against him this morning, but I am sure my old-time friend is far too generous to ever deceive me. I shall trust him. But, O my daughter Alfaretta! would that I had not found thee."

The doctor's reflections were suddenly interrupted by a great noise from the terrace above, like the crushing of glass, followed by shrill shouts by the squaws, the agonized braying of a donkey, and Gimp shouting, "She's killed! she's killed! oh she's killed!"

ANOTHER DEFUNCT JOURNAL.

Noticing in your January 15th number an article by Dr. C. C. Miller, giving a list of defunct bee-journals, as the subject seems to be of interest to your readers I write to call attention to *The American Bee Gazette*, which started some time in the '60's in New York City, under the management of E. Van Slyck, and, after a few issues, was absorbed by the *American Bee Journal*, of Washington, D. C.

Bellaire, Mich. ROSWELL LEAVITT.

Editorial

By E R Root

BEES appear to have wintered unusually well all over the country, up to this writing; and so far the spring has been favorable.

THE California anti-honey-adulteration law, spoken of in last issue, is already bearing fruit, for, according to the *Pacific Bee Journal*, "The fight is already on, . . . and many arrests have been made." This sounds like business. Let other States follow suit.

THE use of drawn combs in sections, and their value in supers, is being commented on very favorably in the *Review* and in the *American Bee Journal*. By "drawn combs" is meant those that are built wholly by the bees, but have been previously drawn out to catch the honey-flow."

THE new machine for making drawn foundation is now able to turn out samples with cells about $\frac{3}{16}$ deep, running somewhere about 9 feet to the pound. The base is very much thinner than in that of any sample of foundation that we have hitherto turned out, and the walls themselves are about $\frac{5}{1000}$ thick—$\frac{3}{1000}$ being the natural thickness. We are at present using only a small portion of the die surface. Later on we hope to make larger samples the same weight.

IN the last *Review*, experimenter Taylor, of the Michigan Experiment Apiary, details his experiments with the Aspinwall non-swarming hive. He has used two of these hives in his apiary for two seasons, and yet he says "the results, so far as determining the true value of its non-swarming quality is concerned, are thus far negative." Elsewhere he states that "swarms from other hives were exceedingly few. The hive is a marvel of ingenuity," he says, "with closed-end frames held compactly together with a screw which works against a movable side." An objection to the hive, he urges, is that it would cost considerably in excess of the regular Langstroth hive; and the present times and low prices and small profit speak too eloquently in the ears of the producer.

Personally I have always liked the appearance of this hive, and it has seemed to me that it contained good features providing it did not make the hive too expensive.

MRS. J. N. HEATER.

IT is with much regret that we announce the sudden death of Mrs. J. N. Heater, of Columbus, Neb.—one of the leading lady bee-keepers of her State, and at the time of her death she had attained almost national distinction. She was present at the Lincoln convention, and gave us a valuable paper. Mrs. Heater had undergone an operation, which was supposed to have been successful; but it seems the anesthetic—chloroform—was too powerful for her. She was an earnest Christian woman, and at the time of her death we have no doubt she had placed her hope in Christ Jesus. The manner of her death is told in one of the local papers in this way:

> On Friday night, March 12, Mrs. Heater could not sleep; and toward morning Mr. Heater, who was at her bedside, said, "Shall I sing to you? Perhaps it will put you to sleep." The suffering one nodded assent, and Mr. Heater softly sang a favorite song, and she seemed to drop into a gentle sleep; but, alas! the watching husband soon found to his sorrow that it was the sleep of death.

The untimely death of Mrs. Heater reminds us of the very sudden death of another lady almost equally prominent, who was present at the Lincoln convention—Mrs. A. L. Hallenbeck. It will be remembered that she died from the result of injuries received in a runaway, about ten days after the convention.

THE MAJESTY OF THE LAW.

JUST as we go to press, the April number of a bee-paper (monthly) is at hand. It is filled almost from cover to cover with articles attacking the new drawn foundation. Some of the writers have not only resorted to gross misrepresentations and ridicule, but have gone so far, in our judgment, as to libel our name and attempt to injure our business. Indirectly, but *very pointedly*, we are referred to as "unprincipled men," "adulterators," and the like. The editor is evidently making the effort of his life to injure our name, reputation, and business. He has written bee-keepers everywhere to secure sympathy. From some of them, as we know, he has received cold comfort in return; and the letters from others he has, of course, published. We have fully explained our course; and any reasonable person knows we do not and would not do any thing to injure the honey business.

One thing is certain—we shall not weary our readers with an extended reply in defense of our name. As to what we shall do further, we have not yet decided. It may not have occurred to some of these writers that they may be rendering themselves as well as the publisher amenable to the law.

CHARACTER OF COMBS CONTAINING HONEY; A DISTINCTION IN TERMS.

IN the April 1st issue of the *American Bee Journal* is an article from W. Z. Hutchinson, the last paragraph of which is as follows:

> I recently expressed my views regarding the new deep-cell foundation, with which The A. I. Root Co. is experimenting, and have only to add, when such a man as E. R. Root says that the comb resulting from the use of this new foundation is as brittle and "eatable" as natural combs we can only wait—

suspend our judgment until we can try it ourselves. If it should turn out that the use of this product does not debase the comb honey, and it can be produced in commercial quantities at a low price, it is quite likely that it will solve the question of *how* drawn combs should be produced. In the meanwhile we can go on getting drawn combs according to the plans that we know are sucessful.

Mr. Hutchinson quotes me as saying that the comb resulting from the new foundation is "brittle" and eatable. By the term "brittle" he means the same thing that I do; but it seems to me that brittle is not the correct word. If I am any judge, comb is never brittle when filled with honey. It is only when empty and dried out that it becomes such. I think what Mr. Hutchinson means by "brittle" is flaky; and yet to my mind this gives a wrong notion. Comb containing honey should be soft and yielding, whether natural comb or that made from ordinary foundation or from drawn foundation.

Mr. Hutchinson's position is very fair. We are quite willing to place this whole question before the bar of the future; and if that future shall decide against the new product, even though we have invested a heap of money in it we shall drop it. But the past has most emphatically given its decision in favor of the new drawn foundation.

THE NEW UNION AND THE RESULT OF THE ELECTION.

THE following report has been received, and will explain itself:

To the Members of the United States Bee-keepers' Union:—
We, the Executive Committee, according to the power vested in us by the new Constitution, hereby appoint the following as General Manager and Board of Directors of the United States Bee-keepers' Union, to hold their offices during the remainder of the year 1897, or until their successors are elected and qualified:

GENERAL MANAGER—Hon. Eugene Secor. Forest City, Iowa.

BOARD OF DIRECTORS—Ernest R. Root, Medina, Ohio; Rev. E. T. Abbott St. Joseph, Mo.; Dr. C. C. Miller, Marengo, Ill.; W. Z. Hutchinson, Flint, Mich.; E. Whitcomb, Friend, Neb.; C. P. Dadant, Hamilton, Ill.

GEORGE W. YORK, Pres.,
E. WHITCOMB, Vice-Pres.,
A. B. MASON, Sec.,
Executive Committee.

Chicago, Ill., April 1, 1897.

[Mr. York, of the *Bee Journal*, comments as follows:]

Now as the United States Bee-keepers' Union is fully equipped as to its officers, we trust that bee-keepers everywhere will at once send in their dollar membership-fees to the General Manager, Hon. Eugene Secor, Forest City, Iowa, or to the Secretary, Dr. A. B. Mason, Sta. B, Toledo, Ohio, so that there may be ample funds to begin to carry out the objects of the Union, which are expressed in the following paragraph taken from the new Constitution:

ARTICLE II.—OBJECTS.

Its objects shall be to promote and protect the interests of its members; to defend them in their lawful rights; to enforce laws against the adulteration of honey; to prosecute dishonest honey-commission men; and to advance the pursuit of bee culture in general.

What more do you want? Where is the bee-keeper that doesn't want to help carrry out every one of those splendid "objects"? Surely, every bee-keeper in the land will be glad to have his name enrolled as a member of the new Union.

I say amen to every thing that Mr. York has said. Article 2 shows the object of the new organization. Its field is large—very large. Perhaps this season it will not be able to make a very great showing until we can get it on its feet. First of all, we need funds, and that means a large membership. Those who are anxious to see some of the crooked ways of commission men brought to light, and the glucose evil fought, should plank down their dollars at once. Unless the officers are supported, they can not very well compass much in the lines indicated.

THE WILLIAMSON PRODUCE CO.; SANFORD & CO.; COMPLAINTS.

MR. J. H. HOYT, of Otisco, N. Y., shipped to the Williamson Produce Co., commission merchants, of New York, 2000 pounds—his entire crop—of honey last September. He has their note, but it would appear he will not be able to realize upon it. The Williamson Produce Co. gave as references on their card the name of R. J. Dean & Co., bankers, New York. We wrote to that firm, inquiring about the responsibility of said Williamson Produce Co., and received the following reply:

The A. I. Root Co:—In reply to your letter of March 19, we would say that we never gave the Williamson Produce Co. permission to refer to us. From the complaints that have been coming here, we should say that they are anything but responsible.
Yours respectfully,
R. J. DEAN & CO.
302 Greenwich St., New York, March 22.

On the 19th of March we wrote to the Williamson people, calling their attention to the complaint of Mr. Hoyt; but as yet we have received no reply. It is possible that they will take up the note; but in the mean time our readers can draw their own conclusions.

In the last *American Bee Journal* there is recorded a complaint regarding the now extinct firm of Sanford & Co., of New York. Complaints have also come to us concerning the same parties. A word to the wise is sufficient.

When will bee-keepers learn not to trust the product of their honest toil to entire strangers? In the first instance, it is possible that Mr. Hoyt was misled by the fact that the Williamson Produce Co. referred to a responsible banking house which he knew. If he had taken pains to write to this house before he shipped his honey he might now have something to show for his year's work with the bees.

A few days ago we received what we *thought* was quite a bad complaint against one of the firms that furnish quotations for GLEANINGS. On referring it to the firm in question we learned that the bee-keeper had sent the honey without orders, as well as some other produce; and the firm wrote us that, if their patron had simply asked for instructions, they would have advised him to hold his produce until they could have found for him a customer in his own vicinity. But, no; our friend, without orders, shipped the produce to the city, at a distance from his own home, where the goods (apples in this case) were a drug on the market, and were actually being dumped by the hundred bushels because there was no sale.

Moral.—Do not trust unknown firms, even if they do furnish good references. Write to the references first; and while you are about it write to us too, for we are on the track of nearly all the honey firms. Second, do not ship your honey or any thing else without first receiving orders from the commission house.

FOUNDATION WITHOUT SIDE WALLS.

Allusion was made in our last issue to the fact that a number of bee-keepers had clubbed together to purchase a foundation-mill that would turn out an article without side walls. Mr. Bingham, in a recent article in the *Review*, in writing of this, says: "While not strictly an invention, it is practically such."

I do not know whether he meant to say that such foundation was new or not; but, if I am correct, the first foundation that was ever made had no side walls. Cheshire, in his "Bees and Bee-keeping," second volume (1887), has a good deal to say about what he calls "artificial midrib;" and in Fig. 48 he shows a wax-press for making the product. One of the earliest patents on foundation, I believe, showed the foundation without the walls. Something like twelve or fifteen years ago we made a mill for W. W. Bliss, then of Duarte, Cal., that turned out a foundation without side walls, running about fifteen feet to the pound—in fact, an almost exact duplicate of that which is turned out on the mill made for the members of the Michigan State Bee-keepers' Convention, the product from which has been so greatly admired by Mr. Bingham and others. The first foundation that was ever made by A. I. Root was from small plates that were an exact counterpart of the midrib without wall. One of these old die-plates was used in the office, as a memento of old days gone by, but serving in the exalted position of a paper-weight. Singularly enough, up till recently it was wont to hold down the piles of orders for the new Weed process foundation.

Artificial midrib, if we adopt the word of Mr. Cheshire, is not a new article; but the mere fact that it has been tried in the past, and seemed to have been forgotten for some reason or other for the regular foundation, is somewhat significant. But many another good thing has been abandoned, which later on has proved to be of value. Possibly this may be true of the article over which a few of the members of the Michigan State Convention were so enthusiastic.

But if it is a light foundation that is wanted, we can make, and, in fact, have made, an extra thin, having side wall, running 15 feet to the pound; and I am not sure but we could make it as light as 18; but the very light grades do not seem to meet with a very favorable reception by the bees nor by their owners.

Mr. Bingham seems to feel that the septum, or midrib, without side walls, would be less liable to sag than that with. To me it would seem as if it were the other way. The grounds for Mr. Bingham's convictions are that a side wall is unnatural, and that, in the effort of the bees to improve it, they fall into all sorts of calamities. These are points that this season's experimenting will very easily settle.

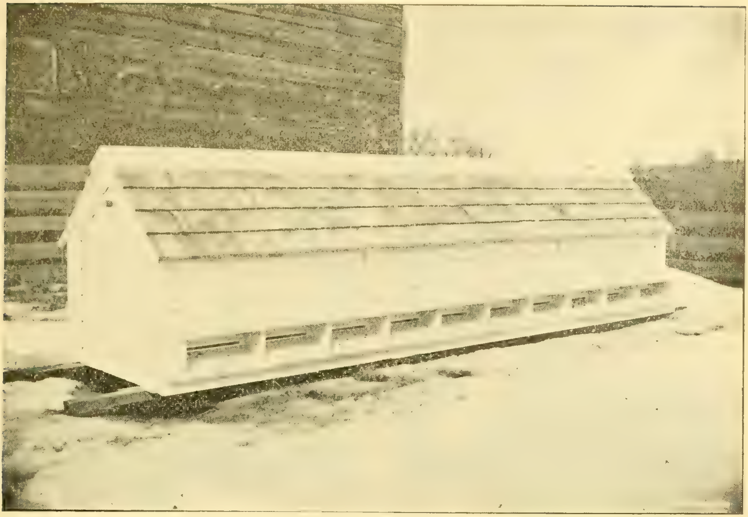
THE ORTON TEN-COLONY TENEMENT HIVE.

Some little time ago we received two fine photos of a tenement double-walled hive, and along with them came a short description. This last seems to have been mislaid during the interim in which the engravings were being made. I have been waiting for it to "turn up," but as the subject-matter will soon be out of season I decided to submit it to our readers, without a description, and let the pictures do their own talking.

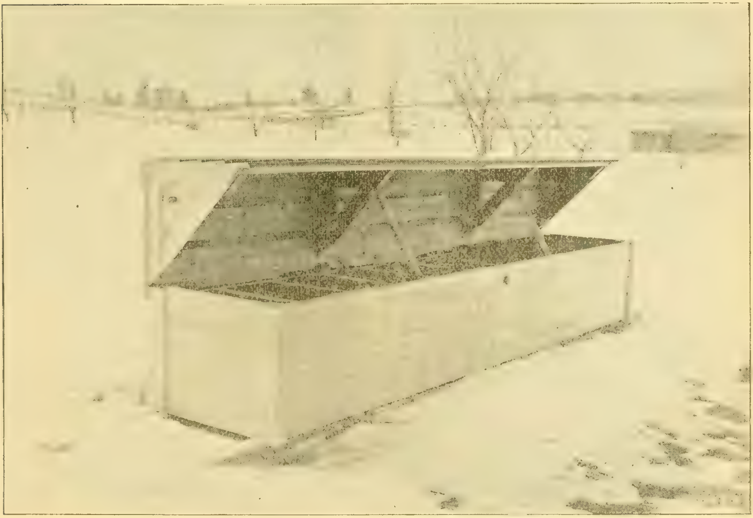
As will be noticed, it is a double-walled hive made to take ten colonies. The cover easily tilts back on hinges, to permit of the manipulation of the colonies, though I imagine it would be a little cramped in working under the cover. The whole material for making up the hive, including the drop siding, if I remember correctly, was less than $5.00; and from the pictures almost any one could construct one like it. Of course, he would have to figure out his own dimensions.

One objection to the ordinary tenement hives is that they are unwieldy. As usually constructed they are made to take four colonies. When sufficient space is allowed for packing, it makes the space so large that it will not go into an ordinary wagon. By taking off the wagon-box, and extending the reach, this hive of Mr. Orton's could be skidded up on to the wagon; but as a general rule, after it is once set down it should stay in that location. Such a hive would be convenient at out-apiaries; and if located in sight of a house, and the cover secured down by means of a padlock, it ought to be reasonably free from the depredations of thieves and heavy winds.

It will be noticed that the upper stories of each brood-section are packed with sawdust or other loose material. By looking very closely you will notice on the back side of the open hive that there is a space for packing-material around the ends of the hives. If there is only thin wood between each brood-nest the two contiguous colonies would be apt to cluster up next to this on account of the warmth. When we kept our tenement hives running, the winter clusters in the four hives were huddled together as closely as possible, and I have no doubt that Mr. Orton finds his colonies have a tendency to cluster in pairs—one on each side of the thin board separating the two colonies.



ORTON'S TENEMENT HIVE, CLOSED—FRONT VIEW.



ORTON'S TENEMENT HIVE, OPEN—REAR VIEW.

OUR HOMES.

> And Joseph gathered corn as the sand of the sea, very much, until he left numbering; for it was without number. . . . And all countries came into Egypt to Joseph for to buy corn; because that the famine was so sore in all lands.—GEN. 41:49, 57.

A few days ago a paper was sent me from Nebraska, with a marked article for me to read. After reading this article my eyes wandered into the next column where there were market reports of the different grains. It read something like this: "Corn in the ear, 10 cts. per bushel." As I read this I concluded it must be for just a bushel basketful of *ears* of corn; but the next quotation dispelled this delusion, for it read, "Shelled corn, 10 cts. per bushel."

When we were at Lincoln, Nebraska, some of the friends explained that you could buy the shelled corn at about the same price as corn in the ear, because the cobs are worth the cost of shelling, for fuel; and they explained that, where corn is quoted at so much in the ear, out west, it means enough *ears* of corn to make a bushel *shelled*. A whole bushel of shelled corn for only 10 cents! Six pounds of one of the most nutritious and sustaining foods that the world ever saw, for just one cent! No wonder our farming friends felt blue and discouraged. And then I wondered why they did not stop raising corn until the price went up a little; but I went on reading the market reports, and I found oats per bushel, *12 cts.;* rye, per bushel —I do not now remember exactly whether it was 30, 35, or 40 cts., but it certainly was a ridiculously low figure. How can farmers go on and prepare their ground and put in their crops with old corn standing around wanting a purchaser, at only 10 cts. a bushel? Why, it seems to me they can not do it. Things are coming to a standstill. Farmers can not buy books and papers, nor even hives and garden seeds. They can not go to the store and trade. They can not even afford postage-stamps, let alone nickels, unless something is done for their relief.

Now, please do not worry, friends, and fear that A. I. Root is losing his faith in God and God's plans. If I were losing faith I would not be writing these Home Papers; for it was faith in God and faith in my fellow-men that first started me; and God will give me faith—and at least a *degree* of wisdom, I am sure, to discuss some of these social problems. Something must be done, and done right speedily, to take this corn that is at present, as in the language of our text, "as the sand of the sea." I do not know but the friends out west have left off numbering, as Joseph did, because the quantity is so great, and nobody to purchase it. In the latter verse of our text, please notice that "all the countries came into Egypt for to buy corn, because the famine was so sore." Is it a famine that is needed? Well, we certainly need not pray that God may send a famine, for already there are millions starving, and millions that will die unless this corn is carried to them. In the last issue of the Chicago *Advance* we are informed that a company has been formed, and a great steamship line has volunteered to move the corn from our Western States right to the sufferers in India, *free of charge*. One of the great problems in the matter—in fact, I might say *the* great problem—has thus already been solved—the cost of moving the corn to the sufferers. May God be praised for this much. In the article I have alluded to in the *Advance*, so far as I can gather, the impression was left that the farmers out west should contribute the corn free of charge. They can get only 10 cts. a bushel for it any way, and they might as well give it away to get rid of it. That seemed to be the impression left, but perhaps I am mistaken. At any rate, I wish to make a little protest right here against asking the average farmer to give *any* thing. If he sells the corn at 10 cts. a bushel, or something like that price, he has done enough. Let the rest of the world—the moneyed world—pay him this small price for his corn. It need not be an act of charity; for if the West can not be set to work raising more crops, we are going to suffer, each and all of us. The manufacturers of the world, and, in fact, the merchants of the world, depend, either directly or indirectly, upon the farming people for customers. We shall surely come to grief, all of us, if we do not remember with kindly feelings the people who till the soil and raise the crops. I do not believe that business men, as a rule, are at the present time inclined to look down upon the farmer. There may be a certain class of dudes and a certain line of aristocracy who have a foolish sort of pride in thinking they do not have to work down in the dirt, as the farmer does. These people are not worth noticing, and *some* of them, at least, *end* their days in poorhouses and asylums. I have seen this sort of retribution. As a rule our people have respect for the tillers of the soil. Our great cities are obliged to bring in boys and girls from the country, to do their work with both brain and muscle.

The farmer does not ask for charity from the merchants and manufacturers. He would not take it, for he has at least a wholesome degree of pride; but he does ask that, from motives of self-protection and common interest, he be remembered. It is certainly to our interest to turn in and help him dispose of his crops. The United States of America can, if it wakes up, raise enough money in 24 hours to relieve our farmers of their surplus grain, and set them going on their ways rejoicing, and at the same time feed the starving brothers and sisters across the water, and set *them* also to rejoicing. Just look into the matter, and read the letters from the hard-working missionaries in our foreign fields. And this work need not be altogether "cross-bearing" either. The man who contributes till he feels it, feels happier, and is prospered in every way a hundred times more than the miser who gets all he can and keeps all he gets.

Why, dear friends, we can not even enjoy a good dinner without making some sort of sacrifice for it. My good friend and dear brother the Rev. A. T. Reed, who is riding that "evangelistic wheel," took dinner with us yesterday. He had been having one of his first wheel-rides for the season; and while enjoying his dinner he told me that no one could believe, until he had tried wheel-riding, what a keen zest and enjoyment it gives one for his food. It gives such an appetite that even the plainest food becomes delicious. Some of you know about this. Surely there *is* no excellence without great labor; and this may apply to a dinner as well as to literature and mechanical work. The man of wealth can not enjoy the good things of this world and life in general unless both he and his capital are doing *work* of some kind. Why, dear friends, you all know that *money* does not make a man happy. There have been several reports of millionaires who committed suicide; and only yesterday I read of a man who put an end to his life, who was worth something like four millions. Had that man gone west and bought corn, to be shipped to the starving people in India, he would have been so happy that no thought of throwing away his life would have entered his head. If he had learned to ride a wheel, and had then gone around among the farmers on the wheel, giving them checks for the contents of their corn-cribs, I think he would have enjoyed a good dinner of corn-meal mush and maple molasses as he had never *dreamed* of enjoying a dinner before.*

Now, friends, there are probably not many millionaires who read GLEANINGS. There may be a few—I do not know. If there are, may God's Holy Spirit bless this little message, and make it bear fruit; and even if you are not a millionaire, may you catch the inspiration from the Holy Spirit, and cast your mite into the fund to move these great masses of corn, that is like the sand of the seashore, to where it will do good. Won't it make you happier to put off buying something you had planned to buy, and give at least a part of your possessions to the Lord? You see, there are three birds to be killed with one stone: First, the saving of precious human life; second, relieving the farmers, and setting them at work rejoicing; third (I put it last because it comes the nearest to self), open the way for prosperity in your own business by helping your brothers both east and west. Why, bless you, it will not be *lost*. In this short life of mine I have many times thrown money away, as some people would look at it—yes, as some of my friends have said—but it was really, however, casting my bread upon the waters; and in many days this bread so cast forth for Christ Jesus' sake has come back with renewed and *wonderful* interest. You can not think how cheering and encouraging it has been while off on my travels to find that I had, away back, helped to benefit somebody, and had forgotten all about it. I need not tell you of these things, because it would seem like boasting; but the very fact that our business has been prospered is owing very much indeed to occasions where I had forgotten business, as it were, and contributed sometimes pretty heavily to demands from foreign fields. Ever since I became a Christian I have given heavily to the cause of missions—many times when I was paying interest on borrowed money to do it; and again and again has business come along in some unexpected and unheard-of way because I had years before listened to the call and promptings of God's Holy Spirit rather than to heed the promptings of selfishness.

Perhaps there are many among the readers of GLEANINGS who really can not give very much consistently. If so, then let them give a little trifle and back it up with earnest prayers that God may move the hearts of men during this beautiful springtime.

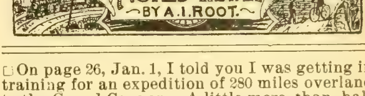
It is not only in suffering India just now, but within the past few days the floods in the South have been so severe that great quantities of corn and other things will be needed there as well, in all probability. Even as I write, an organization has been formed, and the President of the United States has been asked to give governmental aid. Now, let us spring forward as we did during the Chicago fire, and later during the Johnstown disaster, and let these suffering friends know that at least we, who profess to be a Christian nation, *do* love our neighbors. Even if we do not quite come up to the scripture injunction to love them as *well* as ourselves, let us show that we have regard for those who have lost their homes and their farms through no fault of their own, but rather through a wonderful dispensation of Providence which we can not just now understand. I do believe good is coming out of it all, and I rejoice that as yet there has been so little loss of life. Let me digress again just a little:

House-breaking and highway robbery have been worse during the past year or two than perhaps ever before in the United States. This matter of "holding up" and taking a man's money is now getting to be alarming. It is said that even the boys are practicing it. There seems to be a sort of wave, or, as some would call it, a "fad" to take a man's money away from him by force. God forbid that this craze or fad should go any further. Is it not possible that, in God's providence, it may be counteracted by another and a *greater* wave in the line of the little text which says, "Do good, and lend, hoping for nothing again"? and may not this wave be so great as to throw accounts of prize-fighting into the background? May it not sweep away and blot out the cigarette business? May wholesome activities in the way of benevolences toward our fellow-men crowd out selfishness and brutality! May the Lord bless and help in this work that comes just now before our beloved United States of America!

It seems a little funny, but just now the very best recommend that the Anti-saloon League of Ohio has ever heard from any source comes straight from our enemies. May the Lord be praised for such testimony as they have seen fit to give *publicly* and *in print*.

The following is an extract from the *Wine and Spirit News*, official organ of the Ohio State League, of Feb. 24, 1897:

> You are scarcely aware of the activity of the Anti-saloon League. It is but little over three years old, and yet in that brief time it has accomplished more than any organization ever formed in a similar time. The first year it held 2000 meetings. The second year it held 6000 meetings, and the third year 12,000 meetings were held in the State of Ohio. In all, the officers and members of this league have slandered your business and my business in the presence of 300,000 people in the three years, or at the rate of 100,000 every year. The highest number of saloons in this State at one time was over 13,000; now the total number has been reduced to less than 9000. The Anti-saloon League has reduced the number within the last year and a half 1500. In the same length of time they championed a bill in the legislature that would make sixty counties of this State vote "dry" at the very next election, which would have been this spring; and, what is more amazing still, they actually secured fifty votes in favor of its passage. Two years have almost gone by, and we are face to face with the same issue again. The same enemy is again in the field, better equipped, with more men and more supplies than he was when the Haskell bill was defeated in the last General Assembly by the narrow margin of seven votes. Our duty, therefore, as business men, engaged in the liquor-traffic in this State, ought to be plain. We must fight fire with fire.



NOTES OF TRAVEL

—BY A. I. ROOT.—

On page 26, Jan. 1, I told you I was getting in training for an expedition of 280 miles overland to the Grand Canyon. A little more than half this distance had been made. When we were at Robert Phinney's, up in the mountains, we were about 30 miles from Flagstaff; and Flagstaff is about 75 miles from the Grand Canyon. Our trip of 150 miles or more overland had been gradually ascending. The city of Phœnix is but a little above the level of the sea, with its mild temperature. At Campe Verde we are told it is almost a mile above the sea-level. There was considerable frost every night, and the mountains were more or less covered with snow. Before reaching the Grand Canyon I must go almost a mile more, nearly straight up. I was told everywhere that it was a dangerous trip to take in winter; and the cool nights and the raw northeast winds had begun somewhat to affect my health. Very reluctantly I gave up the undertaking until at a warmer season of the year. You see, as we got up in altitude the weather was colder and colder; and when nearing the Grand Canyon there is considerable danger of being snowed under; and this, in a locality that is almost entirely uninhabited, would be risky and dangerous. Rather sadly we turned our horses from the well-beaten road, and headed toward the Jerome gold-mines. The locality of this mining town was plainly visible from the crest of every hill by the volumes of black smoke that seemed to surround and envelop the neighborhood. Down into the valley we went over a very pretty and romantic road until we crossed again the Verde River. Then began our gradual ascent over a good road up toward the mines. The road was so fine I tried my wheel, and rode several miles. Finally I stopped to rest. As my companions came up I said:

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* May I digress just a minute to say that the corn-meal mush should be boiled at least four hours as we do the wheat and rye?

"Why, I do not see what makes me get so tired. I have had a beautiful road; and although I have not ridden more than about two miles, it really seems as if I hadn't strength to go any further."

This remark was greeted with a laugh from my comrades on the wagon. One of them said:

"Why, Mr. Root, instead of two miles you have made six or seven, and, besides this, going up hill at a tremendous rate pretty much every foot of the way. We are now within a few miles of the great incline that takes us up to the city. By all means, get on and ride, and get rested enough so you will be able to foot it up the great hill."

It began to be evident, as we came nearer and nearer, that we were getting into the suburbs of a *town* of some sort. The dwellings were better, and there were slight evidences of wealth on every side. At a most romantic notch in the mountains we came in view of the incline. Said I:

"Why, you do not mean that the horses and wagons go up that hill?"

"Indeed they do, and carry heavy loads too, as you will presently see."

Our ponies were watered, and the sagacious animals looked anxiously up at the task that lay before them. The road was so hard and smooth it was not so *very* hard after all; but it was a terribly long pull, not only on the horses, but our whole crowd were puffing and panting as we reached a turn that gave us the first glimpse of the city. Jerome is built on the side of a cliff. I think it has between one and two thousand inhabitants. The dwellings are notched into the side of the mountains all along. The streets are necessarily very narrow, for one side must be cut into the rocky mountain side, while the other is built out by a wall. The houses are so much one above another that you can not only look down your neighbor's chimney, but many times you could easily jump down, or at least it would almost seem so. There is one single church in the town, built by the Baptists; and I verily believe it cost about as much to put up a structure of timbers to hold the projecting edge of the building as to make the building itself. Every house has one edge jutting into the rocky mountain side; then the other is propped on a stone wall or on timbers. There is only one street in the town wide enough for a wagon. The others are mere walks, or walks wide enough to accommodate a burro. Said burros deliver provisions, fuel, and every thing else. Instead of having streets go up and down the mountain, they have an endless amount of stairways. The town is supplied with electric lights, and waterworks. There is not any sewage at present, and it may be a little difficult to manage it; for slops and rain water will go straight down hill any way. The tank that supplies the town with water is a hundred feet or more above it; in fact, it is so high up that it looks like a good-sized barrel; but it really holds enough for all purposes.

It was toward dusk when we got in, and before reaching the residence of my good friend F. E. Jordan I caught a glimpse of the wonderful pyrotechnic displays that can always be seen day and night. Great tubs of melted slag are constantly being poured out over the cliff as they are carted out from the great Jerome gold and copper mines. In fact, the company is constantly making a level platform on the edge of the mountain, with the molten slag. A guard is placed around the melted *lava* (as I should call it), so that it cools on a perfect level, hard and smooth as ice, and as firm as the rocks. More slag is then poured over the edge of the cliff until it accumulates for a groundwork, and the floor thus laid is used for building out the constantly increasing works of the mining company.

My friend Jordan used to be a bee-keeper at Camp Verde. He has taken GLEANINGS many years, and bought goods of us until he feels perfectly well acquainted. He occupies a very pretty little cottage, one of the three latest built, and almost the highest up in the town of Jerome. Within his beautiful home we found quite a contrast to camping out in the desert. After supper he kindly piloted us over the works of the great mining company. It is impossible to do any thing like justice here on paper, but I will try to give you a little sketch of it.

Years ago a mining company located here and dug out a small quantity of copper ore containing some gold. They supposed they had exhausted the mine, and it was entirely or partly abandoned. This new company, by going a few feet further into the mountains, discovered endless quantities of copper ore—I think some of it going as high as 75 or 80 per cent pure copper. A shaft was sunk down 500 feet or more, and they found ores in paying quantities clear to the bottom. Out of this shaft drifts were led out at different levels. The ore is mined, and placed on cars which are run up to the bottom of the shaft, then it is elevated to a room level with the mines. The cars run right up the elevator, and the contents are then pushed off into the melting-furnaces. The ores, with the proper materials, are dumped into a huge cupola, similar to that used for melting iron. This is mixed with a sufficient quantity of coke, and by the assistance of a tremendous blast of air the whole is raised to such a great heat that the metals run out. This melted metal is conducted into a great pot or crucible. These pots are large enough — well, I think some of them would accommodate a good-sized family, tea-table and all. By means of a powerful crane, operated by electricity, these great caldrons of seething metal are tipped up as one would tip a coffee-pot, and the contents poured into brick-shaped molds. These bricks of copper ingots contain more or less gold; but none of the workmen, nor anybody but the assayer, knows any thing about it positively. While they are pouring out the melted metal you will notice a man with a little ladle about the size of a teacup. He keeps dipping this in for a sample, as it were. These samples are given to the assayer, so that the company has at least some knowledge of the value of the metal they are mining and shipping every day. The works run day and night, week days and Sundays as well. There is no stopping.*

After we were tired of exploring this wonderful industrial plant away off in the wilderness of Arizona, we rested from our labors (climbing up and down), and waited until next morning.

At this point I was reluctantly obliged to bid adieu to my good friends Elvey and Carey, who had been with me so long. They said that, with the bad cold I had, I must not undertake to go home by the route we came; and it is well I did not, for they encountered some storms on the way that would have been at least a little trying to a "tenderfoot." My good friend Jordan got off from duty during the afternoon, and we had a rare time in exploring by daylight.

I said the ores were taken from the mine and dumped into the furnace. This is true of only a part of them. The greater part are run out of the drifts on cars along the track that runs around the mountain-side on a dead level. All along this track are heaps of roasting ore. The ore (sulphuret of copper) is piled up with alternate layers of wood. When the wood is ignited the ore contains sulphur enough to keep it burning. In fact, sometimes the sulphur runs out and runs around loose. I suppose there is not demand enough for it at the Jerome mines so that it would pay for refining and sending to market. This roasting process is in order to get rid of the sulphur and other waste products if I am correct. The fumes of the burning sulphur are so strong that no plant, tree, shrub, or bush can live near or around the town of Jerome. Mrs. Jordan told me that some of the women brought house-plants, and kept them alive for a certain length of time; but when the wind changed so as to blow the sulphur fumes the right way, every thing in the way of vegetable life gave it up. The first inquiry a stranger makes is whether or not these sulphur fumes are unwholesome. Well, the people claim they are not. How nice it is that folks should be so loyal to their own town and climate! My companion told me that people suffering from catarrh or throat troubles were found to be greatly benefited. I remembered then that our good friend E. T. Abbott, of St. Joseph, Mo., when talking at farmers' institutes, recommended sulphur fumes for curing poultry of the roup. I heard him remark that, if you had a very bad cold, nothing would give you relief quicker than to inhale the fumes of the sulphurous acid while you are treating the poultry. I remembered, too, I took particular pains to see what effect it had on my cold, and I was obliged to confess that it gave at least temporary relief. I am inclined to think the fumes of burning sulphur are not necessarily deleterious.

Well, one of the most wonderful things about the Jerome gold-mine is a spring of water that runs out in considerable quantity from the lower drift. The water runs out beside the track. It is carried into a wooden flume something like the irrigating-flumes; and this wooden flume runs along the mountain-side pretty nearly level for a mile or more. The flume is perhaps ten or twelve feet wide, and the water in the bottom is several inches deep. Now, on the bottom of this flume they have laid all sorts of pieces of refuse old iron. The water from this spring from the mine is considerably impregnated with sulphate of copper, or blue vitriol, as it is generally called. Perhaps many of our friends have observed that, when they dip a bright piece of iron or steel—say a knife-blade—into a solution of sulphate of copper, the blade soon becomes coated or plated with copper. When you are spraying fruit-trees with the copper sulphate, you may have noticed this. The explanation is that the sulphuric acid has a stronger liking for the iron than for the copper; so it lets go of the copper, as it were, and grasps hold of the iron, which is an easy solvent. The copper must go somewhere, so it is left on the surface of the iron. Cast-iron articles are often copper-coated by this means. Well, at this Jerome mine the copper is held in solution in such quantities that the iron causes it to drop the copper, not only all over the iron articles, but even on the bottom of the wooden flume. Every little while this loose mass of copper dust or mud is shoveled up. When they get a carload or more it is melted down, and it gives ingots of almost pure copper. Strangely enough—at least it was strange to me—this precipitated copper *also* contains a percentage of gold; and my friends told me that a sharp Yankee down by the Verde River had commenced speculating on his own hook by precipitating an additional quantity of copper from Copper Creek after the Jerome mine had got through with it and let it go to waste. Before the mine was ever discovered, people knew this spring and called it Bitter Spring because no man or animal could drink the water. Now this spring yields a mint of money when you get it out, by chunks of old iron, in the way I have described. Of course, there is a great deal I did not understand at all about the Jerome mine; and even Mr. Jordan himself could not enlighten me on all points. For instance, when I was in the jewelry business (years ago) I learned chemistry enough so that I could extract all the gold, by means of acids, from old jewelry of any sort. This was done by dissolving out the cheaper and baser metals by acids, and recovering the gold by quicksilver. Now, then, if 100 lbs. of copper contains one ounce of gold, how do the folks at the mint, or other metallurgists, get this one ounce of gold and save the copper also? Surely they do not dissolve this quantity of copper in acids, then precipitate it and restore it to its metallic state. If I understand chemistry, this would cost ever so much more than the copper is worth. Can any of our readers enlighten us on this point?

A word about gold-mining. Almost every man in Arizona (and perhaps a good many women and children besides) has been more or less affected at different periods in his life by the gold-mining mania. People are prospecting everywhere, sending samples to the assayers, taking out claims, and selling their chances on said claims. One night by the camp-fire an old miner told me that it was his opinion there were not more than a dozen gold-mines in the whole of Arizona that were really paying expenses. He said, furthermore, that not one of a thousand of the prospecting miners succeeds in making even day's wages, counting all the time they spend at the business. At one point in our travels Mr. Elvey pointed out a mountain-side where he said he had on a for-

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*The machinery and fixtures of this mine are said to have cost about a million of dollars; and the company claims that there is ore enough now in sight to keep them at work for the next fifty years. An English syndicate that talked about buying them out was told that no proposition could be considered short of about *sixty millions of dollars*. I shall have more to tell you about this copper-mine in our next issue.

mer trip seen a dozen men hunting over the gullies and ravines after a heavy rain, to find the precious metallic gold that had been washed out by the storm. I asked him if he did not think it likely that I might find just a *little bit* of gold if I went on foot up some of the dry canyons while the horses were climbing some of the hills. He said it was possible, but he did not think it very probable. Off I started. He told me the gold, being so heavy, it would be clear down to the bottom, under every thing else; and sometimes a little nugget would get stuck in a narrow crevice in the rock, right in the bottom of the run. I soon became full of enthusiasm, and pictured to myself holding up a nugget the size of a small hen's egg, and telling my friends that I myself picked that out of the ravine while I was off on that ride to the Grand Canyon. As I got tired a little I thought a lump of gold the size of a *hickorynut* would have satisfied me very well; then a little later I concluded I would go home satisfied if I could get a piece as large as a pea. Finally I fished my spectacles out of my pocket, and concluded I would try very hard to be satisfied if I could only show to the admiring ones at home a piece of gold of *any size* that I found in the mountains. When I was about tired out I discovered the wagon was waiting. As I reached my friends, panting from my exertions, I announced my convictions something as follows:

"Look here, friends, I have looked everywhere, and worked hard, and I have not been able to find a piece of gold even as large as a pinhead, and I have spent as much as *twenty or thirty minutes* of time, and looked very sharp. I believe I shall hereafter try to make my money in some other way."

They greeted my announcement with a great deal of pleasantry, especially when they remembered my sudden enthusiasm for gold-hunting, and how quickly it had vanished.

HIGH PRESSURE GARDENING

BUFFALO BERRY, HIGH-BUSH CRANBERRY, ETC.

I do not know but I shall have to take back some of my severe strictures in regard to a few of these small fruits. High-bush cranberry certainly was not fit to eat last fall; but after the fruit had remained on the bushes all winter, looking very pretty and ornamental, I found the bitter taste had largely disappeared, and along the last of March Mrs. Root made some jelly or marmalade of some of the berries, that was to me quite delicious and wholesome. Why didn't the nurserymen tell us that the fruit should be left on the bushes all winter, and made into some sauce in the spring? The buffalo berry this year was in bloom the first of April—in fact, before the bush had leaves on. If it comes any thing near being equal to *Eleagnus longipes*, I should be much pleased. Another thing that gives me courage is my Logan berries. These have wintered over all right, and are leafing out quite profusely. They will probably bear this season. The strawberry-raspberry is also starting up out of the ground quite thrifty and strong. The wonderful May-berry does not look quite so promising, but we are beginning to take courage. The Japanese wine-berry has been killed during the winter, except several inches of the wood belonging to the tips that took root last fall. May be we shall be able to get a few berries from these.

THE IGNOTUM TOMATO.

Our veteran seedsman, J. H. Gregory, of Marblehead, Mass., on his experimental grounds last season, tested 45 different varieties of tomatoes. In the account given of this experiment, in a recent issue of the *American Agriculturist*, we find the following:

> If I were asked what one variety for both market and home use I would select out of the entire lot tested in the experimental plot, and combining in the largest proportion all the most desirable traits, I should incline to select the Ignotum.

The above is exceedingly gratifying, especially as your humble servant had the honor of first giving the Ignotum to the world; and I have just interviewed our boys in regard to the matter. While the Ignotum many times seems to be about equal to any other, there are seasons when we are inclined to give the preference to some of the other kinds mentioned in our catalog. For instance, the Earliest in the World tomato is quite a little ahead of the Ignotum in earliness, but is small. Dwarf Champion and Livingston's Beauty are of a brighter color that takes the eye of many; and Livingston's New Stone, for a late tomato, is sometimes larger and of a little better shape.

THE "NEW CELERY CULTURE;" AN IMPROVEMENT ON IT.

From a recent number of the *Farm and Fireside* we take the following, which is high-pressure gardening, and no mistake:

> Those who have tried to grow celery for market by the method known as the "new celery culture" have probably found it difficult to blanch it perfectly. Boards can not be easily used for blanching it when the rows are so close together. They have also found that, unless large quantities of fertilizers and water are supplied, the bunches are too small to be marketable, and that frequent irrigation is required because of the rapid escape of moisture during the long hot days in summer. I think I have developed some methods by which these difficulties have been largely overcome. My experiments were not very satisfactory with the "new celery culture" until last year, when I grew very fine celery in rows at an average distance of one foot apart. Some of this celery, marketed at a fancy price to some of the summer resorts near my village, paid me at the rate of five thousand dollars an acre; and from one large plot of early celery I realized at the rate of between two thousand and three thousand dollars an acre. I am so well satisfied with the results of my plan that I shall use it in my large celery field this year. The plot on which the celery was grown had received a heavy dressing of stable manure for several successive years, and was very rich. Another dressing was applied last spring and plowed in, then the ground was finely harrowed and smoothed with a light plank drag, and White Plume celery-plants set in May. Instead of setting the plants in rows one foot apart, as had been my custom, I set two rows six or seven inches apart, leaving an eighteen-inch space between the double rows. My plan was to board two rows together in blanching the celery, and to leave a space wide enough to walk in when placing the boards. The most of the cultivating was done with a wheel-hoe until the plants were eight or ten inches high, when the blanching-boards were set up and held in place by crosspieces notched and set over the top of the boards. It is very important that the boards be kept well apart until the celery has nearly reached its growth, for the leaves must be kept exposed to the air and sunlight. Near the celery-field is a large brook. Water from this was elevated into a large tank, and used for irrigating purposes. Iron pipes were laid from this tank over the celery-field, with hose attachments every few rods. In this tank I placed some loosely made bags filled with poultry manure. After the water had been allowed to stand a day or two it was distributed along between the celery rows with the hose. To retain the moisture and keep the ground from baking, the eighteen-inch space between the

boards was mulched with manure and other material. One could almost see the celery grow. In a short time it grew above the top of the eighteen-inch boards, and in the dark space between them soon commenced to blanch. It grew over two feet high; and when the boards were then crowded close together, the blanching was completed in a very few days. All who saw it said it was the finest field of celery they ever saw. I began to ship it to the dealers in near-by villages and to summer resorts along our railroad. After they had learned about the quality of the celery the demand was so great that I was unable to supply it, and the field of celery was marketed in a very short time. The celery grew so rapidly that it was very tender, and there were no hollow stalks. I have often been troubled with celery going to seed when planted so early, but on this plot of celery, which was nearly all marketed in August, hardly a single stalk went to seed. Celery grown in this way is very easily prepared for market. I take down the boards, and with a sharp knife cut the plants off a little below the surface of the ground, leaving the roots in the ground, which, with the celery trimmings, add something to its fertility. As fast as the plants were trimmed they were tied in dozen bunches and packed in six-dozen baskets.

There is a large saving in labor with this method as compared with the old one of wide rows and banking with earth. Three or four times as much can be grown on the same land, and there is no banking, no digging up the plants with a spade, and no washing, for there is no soil put around the celery. The plan is an improvement over the one of setting the celery so close together that it will blanch by its own shade, for it blanches the celery perfectly. It is also an improvement over the plan of blanching it with boards in single wide rows, for in boarding double rows one-half of the boards are saved. The mulch between the rows retains the moisture, and less water is required in irrigating the celery. No one can be successful in growing celery by this method without making the soil very rich, and there must be water available for irrigation. With the conditions all right there is money in it. M. JENKINS.

We are sorry the editor did not give Mr. Jenkins' place of residence, for some of us might like to go and see him work on the plan he gives. It can be done, without question. In fact, I have at different times produced almost the same results; but to do what he claims, the ground must be exceedingly rich—in fact, a great part of the soil should be old well-rotted stable manure. The mulching with stable manure to keep the ground moist and hold the moisture is an excellent suggestion; and coarse strawy manure will answer very well for the mulching. After you have learned just how, it may be an easy thing to do; but I would caution beginners to commence with a rod square or less; and when you can make this work all right, then increase your area. I believe the greater part of the attempts at the new celery culture have failed just because there was not old well-rotted manure enough, and water in sufficient quantities. Now, then, who among us is going to succeed in getting at the rate of *two or three thousand dollars an acre* for a single crop of celery?

Health Notes.

SANITARY HIGH-PRESSURE GARDENING.

Our good friend R. B. Hugman, of Hastings, Texas, sends us some suggestions in regard to dry-earth closets. Instead of using dry dust, such as we get in the roads, for instance, he advises using common garden soil sifted, but not so dry as to make a dust; then the product of the closet, after being shoveled over, is just right to work into the garden, or to be plowed under. With his letter he incloses a circular from a London firm, entitled "Moule's Patent Earth closets and Commodes." This circular describes an arrangement very similar to my own for disposing of house slops, etc. From it I make the following extract:

> Where there is a garden, the house-slops and sink-water may, in most cases, be made of great value, and removed from the house without the least annoyance. The only requirement is that there shall be a gradual incline from the house to the garden. Let all the slops fall into a trapped sink, the drain from which to the garden should be of glazed socket pipes, well jointed, and emptying itself into a small tank, 18 inches deep, about one foot wide, and of such length as may be necessary. The surplus rain-water from the roof may also enter this. Out of this tank lay 3-inch common drain-pipes, 8 feet apart, and 12 inches below the surface. Lay mortar on top and bottom of the joint, leaving the sides open. If these pipes are extended to a considerable length, small tanks, about one foot square and 18 inches deep, must be sunk at about every 20 to 40 feet, to allow for subsidence. These can easily be emptied, as often as required; and the deposit may be either mixed with dry earth or be dug in at once as manure. The liquid oozes into the cultivated soil, and the result is something fabulous. This simple plan will effectually deal with the slops; there is no smell, no possibility of any foul gas to poison the atmosphere, and with this, and the product of the earth-closet, any ground may be made productive and profitable.
>
> The following fact will illustrate the value of this system of dealing with house-slops, etc.
>
> On a wall 55 feet in length and 16 feet high a vine grows. A 3-inch pipe runs parallel with this at a distance of 6 feet from it for the entire length; the slops flow through this pipe as above described. On this vine, year after year, had been grown 400 well-ripened bunches of grapes, some of the bunches weighing three-quarters of a pound. During a period of four years, for a certain purpose, the supply was cut off. To the surprise of the gardener, scarcely any grapes during those years appeared; but afterward the supply was restored, and the consequence was an abundant crop, the wood grew fully 16 feet, of good size, and well ripened.

The suggestion of small tanks to collect the *sediment* is a very important addition to my apparatus; and when I construct any more I shall put them in. The idea is the same thing that is often used in underdraining, and called a silt-basin or silt-well. The simplest way to make such a tank is to set a large drain-tile on end, say a foot or more across. If there is a large amount of subsidence, a two-foot length of sewer-pipe 18 inches or 2 feet across would be nice for the purpose; and these silt-basins should be covered in such a way that they can be emptied when necessary. In our own work we have used a common 12-inch drain-tile covered with a stone crock-cover. If the whole is covered with earth you must put an iron rod, or something similar, down where the silt-well is located, or you may not be able to find it. Where simply house-slops and nothing else are run into the tiles it will be a long while before these basins need emptying.

In regard to the value of slops for the garden, for fruit-trees, currant-bushes, or any thing of the sort, there is no possible question. This is a sort of sub-irrigation that every household can invest in. It will save the good wife laborious steps, will save doctors' bills, will keep the home looking neat and tidy, and will give you luscious fruit and vegetables at a very insignificant cost. The owner of any home should have ingenuity enough to adapt the apparatus to his immediate surroundings.

Now, friends, when I come to visit you do not have any unsightly slops in the back yard, but have some fruit-trees and vegetables that are utilizing every day all these waste products. I do not know of any work I enjoy more than constructing such an apparatus, for disposing of slops and sewage from the home.

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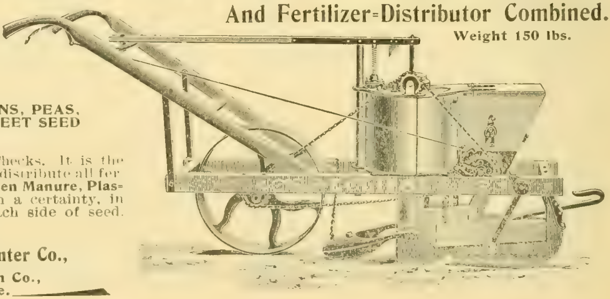

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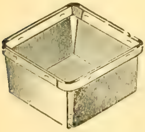

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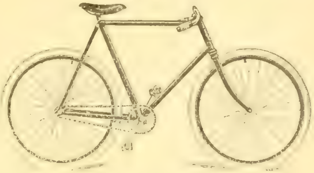

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We carry a large stock, and can ship promptly. Freight is a big consideration, often amounting to 20 per cent of the value of goods. Let us quote you prices on what you need, delivered at your station,

Freight Paid.

They will cost but a trifle more than others charge at the factory. Our aim is to please.

Apiary, Glen Cove, L. I.
I. J. STRINGHAM, 105 Park Pl., N. Y. City.

Please mention this paper

READ! READ!

E. T. Flanagan, Belleville, Illinois.
Dear Sir:—The queen I received from you last year beats any queen I ever saw. If I ever need more queens I now know where to get them. Yours truly, M. Smischny,
Brentwood, Ark., May 2, 1896. Dealer in bees and honey.

E. T. Flanagan, Belleville, Illinois.
Dear Sir:—The four three-frame nuclei and one full colony I bought of you last May, all arrived in excellent order and have done exceedingly well, considering they had a journey of over two thousand miles to reach my place in Idaho. Three of the nuclei gave a large natural swarm each, and, in addition, stored over 100 pounds of surplus comb honey each. The other one did nearly as well. The full colony swarmed also, and stored over 200 pounds of splendid comb honey in one-pound section boxes. I now have nine good strong colonies with plenty of honey to winter on, and have taken from them over 500 pounds of choice comb honey. I am well pleased with my venture. Yours truly, B. F. White.
Dillon, Montana, Jan. 5, 1897.

E. T. Flanagan, Belleville, Illinois.
Dear Sir:—One of the 3-frame nuclei I got of you on May 8 is ahead of any thing I ever saw. I tell you they are doing nicely. Yours truly, H. W. Savage.
Baraboo, Wis., June 3, 1896.

Dear Sir:—From one of the 3-frame nuclei I got of you on May 8, 1896, I have had five good swarms, one of which got away to the woods. I raised 13 splendid queens and got 69 pounds of No. 1 comb honey from it; besides plenty of honey to winter on. Can that be beat? I shall want about 35 nuclei for myself and about 25 for other parties, in the spring. Yes sir, I am well satisfied. Yours truly, H. W. Savage.
Baraboo, Wis., Jan. 10, 1897.

E. T. Flanagan, Belleville, Illinois.
Dear Sir:—The bees and queens I got of you last season were very good, and pleased me very much. They are beauties, and splendid workers. Yours truly, E. C. Haskett.
Palestine, Ill., Jan. 10, 1897.

Dear Sir:—I have bought bees and queens for the past 24 years, from all parts of the United States, and I never received any that gave me greater satisfaction than the nuclei and queens I received from you. You can book my order now for four nuclei to be delivered the coming spring.
Kingman, Kansas. Yours truly, J. W. Young.

Mr. Young has bought bees and queens of me for a number of years.

The above are only a few samples of reports from bees and queens I have sold the past season. I have been nearly twenty years in the business, and it is a real pleasure to please and satisfy my customers. This will not appear again. See small advertisement for hives, foundation, etc.

E. T. FLANAGAN,
Box 783, == BELLEVILLE, == ILLINOIS.

For Sale.

ITALIAN and HYBRID BEES

In Eight-Frame Langstroth Hives.

Italian, **$4.50**; Hybrids, **$4.00**; delivered at depot in Jefferson, free of charge. Discount on five colonies or more.

MRS. C. GRIMM, Jefferson, Wis.

Texas Queens.

Golden,
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Albino.

Dr Gallup says they are the best he has in his yard.

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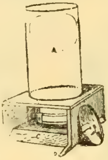
Bee-keeping may be made uniformly successful by judicious feeding. It is just as important with bees as with other stock.



Success in feeding depends very much on the feeder used. When you have tried the

Boardman Atmospheric Entrance=feeder

you will be convinced of this.

For descriptive circulars and price list, address

H. R. BOARDMAN, East Townsend, Ohio.

Queens Given Away.

Gray Carniolans and Golden Italians. We will give a fine tested queen (either race) to all customers ordering 6 untested queens, and a fine select tested queen to all who order 12 untested queens at one time. The queens given away will be sent to customers in August.

Grade and prices of bees and queens.	Apr., May, June.	July, Aug., Sept.
Untested queen	.75	.65
Tested queen.	1.50	1.25
Select tested queens	2.50	2.25
Best imported queens	5.00	4.00
1 L.-frame nucleus, no queen	.75	.50
2 L.-frame nuclei, no queen.	1.50	1.00
Full colony of bees, no queen in new Dov'd hive	5.00	4.00

We **guarantee** our bees to be free from all diseases and to give entire satisfaction. Descriptive price list free.

F. A. Lockhart & Co., Lake George, N. Y.

Please mention this paper.

$ $ $ $ $ $ $

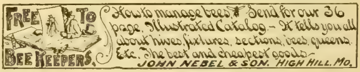
are lost by keeping old and poor queens. It *pays* big to replace them with young vigorous ones *early* in the season, and get a crop of honey with little swarming. I have now untested queens — either light or dark Italians—at $1.00; 6, $4.50; 12, $8.25; tested, $1.00 up. *Guaranteed* to arrive safe at your office, and to be good queens, or replaced free. Remit by M. O. Send for catalog free for particulars. **J. B. CASE, Port Orange, Fla.**

Please mention this paper.

Five Per Cent Off till April 15 to Reduce Stock.

When the order amounts to five or more dollars the goods will be delivered f. o. b. cars Springfield, Ill.

W. J. Finch, Jr., Chesterfield, Ill.



FREE TO BEE KEEPERS. How to manage bees. Send for our 36 page, Illustrated Catalog.— It tells you all about hives, fixtures, sections, bees, queens. Etc. The best and cheapest goods— JOHN NEBEL & SON. HIGH HILL, MO.

Your Orders for Untested Queens

will be promptly filled by return mail, 75c each; $8.00 per dozen. Tested, $1.00 each; $11.00 per dozen. Queens are carefully bred from best Italian stock. Satisfaction guaranteed on every order.

J. W. K. SHAW & CO.,
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Hood River Strawberry—best shipping—35c per dozen; $2.00 per hundred, postpaid.
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Oregon Yellow Danvers Onion—largest yielder and best keeper known—90c per pound; 5 pounds to one address, $3.25, postpaid. Oregon Hubbard Squash—best yet—$1.00 per pound.

Buell Lamberson, Seed Store, Portland, Oregon,
Agent Root's Bee-supplies.

FEED YOUR BEES

WITH BASWOOD. PROTECT THEM WITH EVERGRENS.

100, 2 to 5 feet, **$10. 100 Baswood Seedlings, $1.** Delivered free. *Other sizes just as cheap. **50 $1.00 Bargains** by mail. Millions to select from. Also **Fruit Trees, Small Fruits, Vines, etc. Liberal cash** commissions for **clubs. Illustrated catalogue free.** Good local Salesmen wanted. Address

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Seeds, Plants, Bulbs, Small Trees, etc. by mail postpaid, safe arrival and satisfaction guaranteed. Larger by express or freight. 43d Year. 32 Greenhouses. 1000 Acres.

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1500 Bbls. Sweet-potato Seed.

Yellow Jersey, Carolina, and Nansemond, selected size, $2.50 per barrel; 2d size, $1.75 per Bbl.

Red Jersey and R. Nansemond,	2.50	"
Red Bermuda and Red Spanish,	2.75	"
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Discount of 25c per bbl. on 5-bbl. lots. Send for free circulars. Adddress

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Manum's Enormous.

The greatest-yielding potato on earth. They lead all at several experiment stations. Prices low. Potato and Queen circulars free.

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Published semi-monthly at Omaha, Nebraska, is the leading authority on fruit grown in Nebraska, and on general agriculture in the West. Send for sample copy and free strawberry-plant offer. Address

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FAY'S CURRANTS.

Large stock, extra strong, 2 years old, 20 bushes for $1, or $3 50 per 100; 1 year old, 25 bushes for $1, or $2.50 per 100. **FRED H. BURDETT, Clifton, N. Y.**

BEES QUEENS

Smokers, Sections, Comb Foundation, And all Apiairan Supplies cheap. Send for FREE atalogue. **E. T. FLANAGAN, Belleville, Ill.**

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Are fine large bees that work well on red clover. Are bred for business. One untested queen, 65c; two for $1.25; one warranted queen, 80c; two for $1.50; one tested, $1.25; 1 select, $2.00. Queens furnished in season, and satisfaction guaranteed.

C. M. HICKS, Hicksville, Wash. Co., Md.

Queens, Either Golden or Imported by return mail. Untested, 75c; Tested, $1.00; Breeders, $2.00. None better.

W. H. LAWS, Lavaca, Ark.

QUEENS, Either 3 or 5 banded, 75c each; 6, $4.25. Nuclei, and all kinds of supplies cheap. Eggs for hatching B. P. Rocks, 75c; S. C. B. Leghorns, 50c per 13. Catalog free.

CHAS. H. THIES, Steeleville, Ill.

UNTESTED QUEENS, leather-colored Italian, in April, 50 cents each. If you want cheap bees, queens, and sweet clover, send for my circulars and price list. Safe arrival and satisfaction guaranteed. Address W. J. FOREHAND, Fort Deposit, Ala.

Queens, Queens, Tested.

I have Italian queens, either golden or dark queens from imported stock—good queens reared late in season of 1896, at $1.00 each. Ready to mail the first of April. **W. A. Compton, Lynnville, Tenn.**

Second-hand Bicycles

offered recently have all been sold, but we have three more. One **Remington Racer** (made by the Remington Arms Co.), weight 20 lbs., 1¼-in. tubing; nearly as good as new, and listing $110.00. We offer for **$5o.** Reason for selling, A. I. R. expects to ride 1897 model. Also one $85 model 9 Monarch, 1895 pattern, in good riding condition, for $30. Also one Hartford, made by the Pope Mfg. Co., '94 pattern, in good condition, for $20. Catalogs with full particulars, showing each model, furnished upon application. Wax at market price will be accepted in place of cash.

THE A. I. ROOT CO., Medina, O.

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Our New 1897 Illustrated Live-stock and Poultry-supply Catalogue

is "up to date." Many new kinks in poultry culture are suggested and illustrated and no LIVE "chickener" should fail to see it. Has BEE FIXINGS too.

What is YOUR NAME?
Where do you live?

JOHNSON & STOKES,
SEEDSMEN,
217 & 219 MARKET ST.,
PHILADELPHIA, PA.

AGENTS WANTED.

KILLS ALL BUGS

You can dust one acre of potatoes in 40 minutes by doing two rows at once. No plaster or water used. With this machine you can dust tobacco, cotton, fruit trees, currant bushes, etc. BOOK FREE. Write to

HOTCHKISS BROS.,
Wallingford, - Conn.

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Six Cents.

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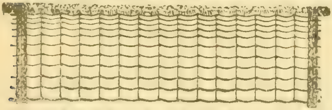

Unruly Stock at a Premium

We want animals to show off our fence, **persistent** fighters for "liberty," whose war cry shall be "up and at 'em" again. We bought a Jersey bull, "highly recommended" for the position, but two rounds satisfied him, and neither dogs or red rags could induce him to give the **Page Fence** another trial.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

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Just Arrived!

My second carload of goods from **The A. I. Root Co.** has arrived, and I am in shape to fill all orders promptly at their catalog prices. Send for my 36-page catalog; also send a list of what goods you will need, and I will make you special prices on early orders.

GEO. E. HILTON,
Fremont, Mich.

"WATCH POUDER'S AD"

SEE THAT WINK?
BEE SUPPLIES.

Root's Goods at Root's Prices.

Pouder's Honey Jars and every thing used by bee-keepers. Low freight rates; prompt service. Catalogue free.

WALTER S. POUDER,
162 Mass. Ave., Indianapolis, Ind.

One Cent Invested in a postal card will get my large catalogue of all Root's goods. Can save you money.

M. H. HUNT,
Bell Branch, Mich.

Do You Keep Hens?

If so, you want Nissly's Poultry Annual and catalog of "Everything for the Poultry Yard" for 1897, (13th year). It's a pretty book of 72 6x9 pages, finely illustrated and full of information. It illustrates and describes Michigan Poultry Farm and its stock; describes and prices the **biggest** and **cheapest** stock of

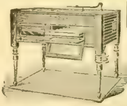
POULTRY SUPPLIES

in the U. S: tells all about the New American Incubator and Brooder, the triumph of incubator and brooder manufacture. You need this catalog; it will save you dollars. The book is free, but we request a 2c stamp for postage.

Address

GEO. J. NISSLY, Saline, Mich.

Dealer in "Everything for the Poultry Yard."



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THE SUCCESSFUL INCUBATORS.
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All about them in our catalogue.
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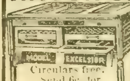
DES MOINES INCUBATOR CO., Box 503 DES MOINES, IA.



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Simple, Perfect, Self-Regulating. Thousands in successful operation. **Lowest priced first-class Hatcher made.**

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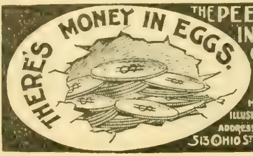
114 to 122 S. 6th St. Quincy, Ill.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THE PEERLESS INCUBATOR COMPANY
TELL HOW TO
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HANDSOME
ILLUSTRATED CATALOGUE
FREE!
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Root's Goods at his prices in Northern Michigan.

Local dealers supplied at dealer's rates. Goods shipped from Mt. Pleasant, Coleman, or Evart.

B. WALKER, Evart, Mich.

Wants and Exchange Department.

Notices will be inserted under this head at one half our usual rate. Advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 c. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange Italian queens, bred from imported mothers, for plants, seeds, pet stock, or Cowan extractor. What have you to offer?
J. H. GARRISON, 1011 N. 23d St., St. Louis, Mo.

WANTED.—To exchange Belgian hares, homing pigeons, White Leghorn eggs or breeding-stock for Italian queens from imported mother, pure-bred geese, ducks, or ducks' eggs, or offers.
EUGENE MANNING, Jacksonville, N. Y.

WANTED—To exchange eggs from B. Rocks, W. and Buff Leghorns, S. S. and Buff P. Bantams, for wax or queens. J. HALLENBECK, Altamont, N.Y.

WANTED—To exchange young laying queens for bee-hive machinery or full colonies of bees; will pay cash for bees if preferred.
H. G. QUIRIN, Bellevue, O.

WANTED—To exchange incubator, hives, supplies, rubber printing-outfits, or cash. Want honey, wax, or fdn.
O. H. HYATT, Shenandoah, Page Co, Iowa.

WANTED—To exchange standard varieties strawberry-plants and Turner raspberry-sets for any thing useful. H. R. GEBHART, Miamisburg, O

WANTED.—To exchange single-case World typewriter (good as new); also hybrid bees in full colony, for extracted honey or offers.
A. W. GARDNER, Centreville, Mich.

WANTED.—To exchange strawberry-plants, Bubach, Jessie, Warfield, Crescent, Haverland, Gandy, valued at $2 00 per 1000; Cuthbert raspberry; Snyder, Taylor, Western Triumph blackberry, cheap for beeswax. A. P. LAWRENCE, Hickory Cor., Mich.

WANTED.—To exchange bicycle for foot-power screw-cutting lathe, Barnes saw, or mechanic's tools. ROBERT B. GEDYE, La Salle, Ill.

WANTED.—To exchange Barnes foot-power saw, Wilson bone-mill, double-barrel shot-gun, for bees or nuclei. J. T. ELLIOTT, Colliers, W. Va.

WANTED.—To exchange a fine new Story & Clark upright piano, for honey or offers.
E. T. ABBOTT, St. Joseph, Mo.

WANTED.—To exchange all kinds of bee-supplies for 2 H. P. gasoline-engine or offer.
DEANES & MINER, Ronda, N. C.

WANTED.—L. drawn combs and Langstroth or Simplicity hives. Second hand. Describe, and give price. N. E. BOOMHOWER,
West Groton, N. Y.

WANTED.—To buy an apiary of 50 to 100 swarms, or to exchange pure-blooded McKarp chickens.
B. F. HOWARD, Hayt Corners, N. Y.

WANTED.—To exchange Prairie S. incubator and brooder, No. 1 Zimmerman fruit-dryer, White Leghorn eggs, small-fruit plants, for Italian bees, team harness, Eureka and Loudon raspberries, or offers. G. M. AMES, Tamaroa, Ill.

WANTED.—A young American man would like a position in some western apiary. Had 2 years' experience. Would prefer a good chance to learn rather than first-class wages. Can give good recommend. eoi A. E. FORD, Fitchburg, Mass.

WANTED.—Bees by pound or colony. Answer quick. M. ALEXANDER, Hartford City, Ind.

WANTED.—To exchange one microscope in mahogany case, for photographic outfit, kodak preferred. L. L. ESENHOWER, Reading, Pa.

WANTED.—To exchange 60-lb. cans in good order, boxed, valued at 25 cts. each, delivered, for comb or extracted honey, of this or next season's crop, at the market price. Quantity lots at reduced rates. B. WALKER, Evart, Mich.

Root's Goods.

Before placing your order for this season, be sure to send for Root's

1897 Catalog, ready now.

Our 1897 hives, with improved Danzy cover and improved Hoffman frames, are simply "out of sight." Acknowledged by all who have seen them to be a great improvement over any hive on the market, of last year.

Comb Foundation.

WEED NEW PROCESS

Cheaper and better than ever; clear as crystal, for you can read your name through it. Process and machinery patented Dec. 8, 1896, and other patents pending. Samples of the new foundation free.

The A. I. Root Co.,

Main Office and Factory, **Medina, Ohio.**

Branch offices at 118 Michigan St., Chicago; Syracuse, N. Y.; St. Paul, Minn.; Mechanic Falls, Me.; No. 10 Vine St., Philadelphia, Pa.

SPECIAL NOTICES FROM BUSINESS MANAGER

MAPLE SUGAR AND SYRUP.

We are still prepared to supply maple sugar and syrup at prices noted in our last. We have a supply on hand for prompt shipment.

DOVETAILED HIVES, 1896 PATTERN.

Those who prefer last year's pattern of frames and cover and style of packing, we are prepared to supply on short notice, as we have quite a stock of No. 1 Dov. hives, put up before the changes for 1897 were decided upon. These are furnished at 5 cts. per hive less than the list price of 1897-pattern hives.

HONEY.

We have the choicest Wisconsin clover and basswood honey to offer in 60-lb. cans, 2 in a case, at 7 cts. In 1-gallon cans, 8 in a case, at $6.50 per case; 2 cases at $6.25; 5 or more at $6.00. Just think of it! the choicest honey in one-gallon cans at 75 cts. a gallon! There are few families who would not take a gallon of such honey at $1.00 if they had the opportunity. It has all been melted.

SECOND-HAND FOUNDATION-MILLS.

Since our last we have added two choice mills to our stock of second-hand machines as follows: One 10-inch round-cell, No. ZZ. Price $12.00. This will make foundation about 6 feet to the pound, and has had excellent care; is practically as good as new, and good value for the price. One 6-inch hex, No. 1331. Price $12.00. This has been used just enough to get it into the very best condition for work, with very thin base. Will make 11 feet to the pound. Practically as good as new. We have most of the mills listed in our last issue.

CARLOAD SHIPMENTS.

Since our last issue we have made up a large carload of export orders, the principal shipment going to Sydney, Australia. We have another car to load for same port, and one for Liverpool, England. We have also put up a large car for Reno, Nevada, and Inyo Co., Cal. A second carload has been shipped to the Northwestern branch at St. Paul, and we are shipping a third car to Jos. Nysewander, Des Moines, Iowa, and one to Henry F. Hagan, Rocky Ford, Colo. We have also two or three other carload orders entered to go as soon as possible.

We are running eleven hours a day in most departments, and the section machinery fifteen hours a day to keep pace with the demand.

DRAWN FOUNDATION.

We are now turning out drawn foundation in pieces 2x4 inches in size, with cells ¼ inch deep on each side the base. There are eight of these pieces in an ounce, or 128 to the pound, or about 8 square feet to the pound; with cells only ⅛ inch deep each side, there are 12 pieces in an ounce, or 12 square feet to the pound—as light as extra thin foundation. By rolling the sheet wax down still thinner it can be made lighter than any foundation now offered for sale, or which has ever been produced. With a little more work on the machine, and more pressure, we shall be able to turn out pieces 5x8 inches in size. For the present we offer only the pieces 2x4, two of which fill a 1-lb. section. To enable many to try a little of it we will send 6 pieces, 2x4, put up in 1-lb. section, postpaid to any address, for 12 cts. in stamps, or the same shipped with other goods for 10 cts. These will have cells about ¼ inch deep. A package containing 10 pieces 2x4, with cells ⅛ inch deep, mailed for 15 cts.; shipped with other goods for 12 cts.

"The proof of the pudding is in the eating," even so the proof of the value of this drawn foundation will be finally in the eating of the honey produced with it, and the way the bees take hold of it. A little practical experience in this line will be worth more than all the theory you can pack into all the articles and editorials which may be printed in a generation. We believe that, for a perfect article of comb honey, it is going to entirely remove the objection which is often urged against the use of ordinary foundation. We hope many will give it a careful trial this season on a small scale. We shall then, at the close of the season, have testimony of some value as to its utility and desirability in use.

VAN ALLEN & WILLIAMS' CLAIM.

Van Allen & Williams, of Barnum, Wis., are claiming that our four and six frame Cowan extractors are an infringement upon the patented automatic reversing extractor of their own. We have before us a copy of the patent, dated Nov. 15, 1892. The object of the invention is to secure *automatic* reversing of the pockets. There is only one claim, and that a combination claim, and a very narrow one at that, covering a peculiar method of *automatic* reversing. Our extractors *do not* reverse *automatically*. One hand turns the crank, and the other reverses the baskets without even stopping the machine. Moreover, we can prove by plenty of printed references that the vital features of our Cowan extractor, including the sprocket-wheel and chains, are old ideas. The claims of Van Allen & Williams are preposterous. It is unnecessary to state that we shall protect all those who are using Cowan extractors.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

DWARF ESSEX RAPE.

We are pleased to tell our friends that we have succeeded in making the following low prices for the coming season: 1 lb., by mail, postpaid, 20 cts.; 5 lbs. or over, 8 cts. per lb.; 100 lbs., 7½ cts.

A special leaflet in regard to above sent every purchaser, or mailed on application.

GRAND RAPIDS LETTUCE.

Since my statement on page 264, of our last issue, in regard to lettuce, we have sold 275 lbs., and the greater part of it came from two beds, each 50 feet long. The plants were set out in November in one of the beds, and in the other about the middle of January. We arranged the heat so as to have them mature just when there was the best demand for them. We have been getting a dollar a bushel for spinach grown under glass in the same way, and the demand bids fair to be beyond our supply, for we are nearly sold out of both lettuce and spinach, and our customers come right to our beds and take it away. So much for having a nice crop maturing just about the middle of April, when there is the greatest demand for such products.

VEGETABLE-PLANTS READY APRIL 15.

We have a very fine stock of almost every thing. Our twice-transplanted cabbage-plants have been through so many freezes and snowstorms, without protection, that we consider them fully equal to cold-frame plants started in the fall. These large twice-transplanted plants are 10 cts. for 10; 75 cts. for 100; $6.00 per 1000. We have also a fine stock of those once transplanted, at just half the above prices.

Of cauliflower we have the finest lot I think I ever had at this season. The price is the same as the cold-frame cabbage-plants. We have also a nice lot of very fine tomato-plants, including the new Earliest in the World. The price of these also is the same as the cold-frame cabbage-plants. Twice-transplanted plants, large and stocky, double above prices. Celery-plants, White Plume, Golden Dwarf, 40 cts. per 100, or $3.00 per 1000. Sweet-potato plants, four different varieties—General Grant, Bunch Yam, Yellow Jersey, and Early Peabody. Price 5 cts. for 10; 40 cts. per 100; $3.00 per 1000. Sweet-potato plants, however, will hardly be ready before about the last week in April. All plants wanted by mail will be 25 cts. per 100 extra, and the *twice-transplanted* plants are, as a rule, too large to be mailable.

POTATOES FOR PLANTING.

We still continue our offer made on page 264 of our last issue, of a dollar's worth of potatoes for every new name for GLEANINGS, and 50 cents' worth for renewal. Please read carefully the conditions as given in last issue. In addition to this the price of Thoroughbreds will be reduced from $5.00 to $3.50 per barrel; bushel, $1.50; ½ bushel, 85 cts.; peck, 50 cts; ½ peck, 30 cts. Remember, the Thoroughbred is probably the best yielder among all the early potatoes; and in *quality* it is next to the Freeman. We had some for dinner yesterday, and it was a pretty hard matter to decide whether the Freemans were any ahead. The Freeman is the better-shaped potato when grown on *our* soil; but those grown by friend Manly, in Michigan, are as good shape as any Freemans Our stock of Carman No 3 is just sold out.

Later.—At the present writing, April 14, we have plenty of potatoes to give away to our subscribers, of each of the following kinds: Early Thoroughbred, Early Ohio, Freeman, New Queen, Sir William, Manum's Enormous, and New Craig. We have *seconds* to give away of only Thoroughbred, New Queen, and New Craig.

We have a limited supply for sale of Early Norther, Burpee's Extra Early, Monroe Seedling, Rural New-Yorker, Carman No. 1, and Koshkonong. The latter we can fill orders for promptly, at prices given in table. Seconds are all gone of Early Ohio, Freeman, and Rural New-Yorker.

NAME Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
White Bliss Triumph	$ 15	$ 35	$ 20	$ 35	$ 60	$ 1 00	$ 2 50
E. Thoro'bred, Maule's*	30	75	30	50	85	1 50	3 50
Early Ohio..........	15	35		25	40	75	2 00
Early Norther	12			20	35	60	1 50
Burpee's Extra Early....	15	35		25	40	75	1 75
Freeman	15	35		20	30	60	1 50
New Queen				20	30	50	1 25
Monroe Seedling...... ...	12			20	30	50	1 25
Rural New-Yorker No. 2..	12			20	30	50	1 25
Sir William	15	35		20	30	60	1 50
Carman No. 1	12			20	35	60	1 50
Carman No. 3	15	35	20	25	40	75	2 00
Koshkonong......	15	35		25	40	75	2 00
Manum's Enormous.....	15	35	20	35	60	1 00	2 50
New Craig.................	15	35	20	35	60	1 00	2 50

*50 strong eyes, by mail, postpaid, $1.00.

LATEST AND LARGEST OFFER YET MADE IN THE WAY OF PREMIUM POTATOES.

The New Queens are an early potato; in fact, we have some testimony to the effect that they are almost if not quite as early as any potato we have; at least, this I know—they are in more of a hurry to sprout in the spring than any other potato we handle. Now, then, ours are beginning to sprout, although they have not as yet sprouted so as to injure them in any way for planting; and on this account they must be moved off quickly; therefore, until they are closed out we will give a barrel of firsts to every one who sends us a dollar for a new subscriber, and a barrel of seconds to every one who sends us a dollar for a renewal, subject to the conditions heretofore mentioned, that the new subscriber must be in a new locality, where GLEANINGS has not been going, and that the renewal shall be from somebody who has paid up all arrearages; and in both cases the money is to be sent by somebody who is at present a subscriber. A barrel of New Queen firsts is worth $1.25; in fact, no other seedsman advertises them any lower than this, that I know of. A barrel of seconds is certainly worth half price—63 cents. Now, then, friends, if you want some nice early potatoes for immediate planting, make some of your relatives or friends a present of GLEANINGS, and get a barrel of firsts, or pay up your own subscription two or three years ahead, if you want to do so, and get a barrel of seconds for every year you pay for.

SNAILS WITH GARDENING UNDER GLASS.

When your plants, either in the greenhouse, hotbeds, or cold-frames, are having their foliage eaten off without your being able to find any insect or other enemy around, you can be pretty sure it is snails, and they do their work in the night. We suffered a good deal of loss from them until I determined to sit up all night if I could not find the culprits otherwise. With the light of a lamp with a good shade on it I found them right at the mischief. They are worse in damp weather, and they get in from the sides of the bed. When you see the plants clear up against the outside boards nibbled off, and nowhere else, you may know it is snails. The best remedy we have ever found is tobacco dust. If you sprinkle it around the walls of the greenhouse, or against the damp edges of your cold-frames and hot-beds, you will probably see no more of the snails. Remember, we now furnish 100 lbs. of nice tobacco dust for only $1 75. For prices in smaller quantities, see our seed and plant catalog.

THE HOTCHKISS INSECT-POWDER DISTRIBUTOR.

We may say to our readers that the implement shown on page 306 can be ordered direct from us at the same price as from the manufacturers. We also furnish with the machine an attachment, not shown in the cut, to throw a limited quantity of Paris-green dust right over the potato-plants when they first come up. This attachment also serves to keep the dust well away from the face of the operator, and is quite a convenience when the weather is the least bit windy. We used one last season on our potatoes, currants, and gooseberries, and on almost every thing else, in fact, where insects troubled us. Commence early to fight insect-foes—almost before they get on your ground—and you will find it much easier to keep ahead Until last season we had more or less trouble with worms on our currants and gooseberries. In spite of us they would get the leaves trimmed off more or less. By using Paris green as above, and commencing as soon as the first leaves showed, scarcely a worm was seen on the bushes during the season; and we attributed our great crop of currants and gooseberries largely to our thorough dusting with Paris green very early in the spring. Of course, you do not want to use Paris green when berries of any kind are nearly large enough to use.

SOME OF THE NEW STRAWBERRIES, ETC.

Some time last fall, Thompsons Sons, of RioVista, Va., sent me half a dozen strawberry-plants named "Earliest." We gave them good care, and to-day, April 14, every one of the half-dozen is in blossom. No other plants out in the open air have any signs of blossoms at all. Of course, we can not tell yet how they will turn out, but I think they are going to bear berries *earlier* than any thing we ever got hold of before.

There are two other new strawberries that make me happy every time I go past the bed where they are growing. They are the "Nick Ohmer" and the "Margaret." Of course, I have not seen them fruit yet; but they are growing with such strong rank luxuriant foliage that it is a pleasure to see the progress they are now making day by day. The plants cost us 25 cts. apiece, and on that account we have been covering them with squash-boxes every frosty night. The pane of glass on top of the box gives them all the light they need, even if the box is not taken off every day when the sun gets well up. A little protection to strawberry-plants during the frosty nights of April certainly goes a great way toward making them early, besides protecting the buds from frost. I have not yet tried cotton cloth; but I firmly believe we could get berries enough earlier by the use of cotton cloth, rolled up as explained in the tomato-book, to pay for the investment. You see we should then have this matter of injury from late frosts right under our thumb.

THE HOT SUN DURING THE LAST OF APRIL.

Look out for it in the middle of the day, especially on recently transplanted plants. A little practice will enable you to tell when they are suffering serious injury. Just before this time arrives, protect them from the sun with shutters or cotton cloth, or both. Where the sun is very hot and the air very dry, better put on the sashes just as you would keep out the frost, then cover the glass almost entirely with shutters. I say *almost entirely*, because plants are better with a little light, if they do not get too much; and they are better with a little air if they do not get too much; therefore you can provide the right quantity of both by leaving the sashes and shutters a little space apart. All this takes time and fussing, I grant; but when orders are waiting for plants you can not afford to leave any stone unturned in order to push them forward; and where every thing is done just right, plants will grow at an astonishing rate; and if you *love* the plants you will soon learn to enjoy with a keen zest protecting them and providing for them so as to make them do their very best.

Kind Words From Our Customers.

The new drawn comb foundation is grand. I hope it may become practicable. C. F. PULSIFER.
Dryad, Wash.

I wish to express my sincere thanks for the courteous, honorable, and *kind* treatment which I have always had at your hands. CHAS. B. WILSON.
Norfolk, Va., Feb. 5.

I have taken GLEANINGS since '88, and it grows better every year. Don't forget footnotes and Notes of Travel. Give the swindlers Jessy; every thing good in it. L. D. HOPKINS.
Trumansburg, N. Y.

FROM A PROFESSOR OF THE UNIVERSITY OF NEBRASKA.

I have received the watch which I ordered from you recently, and find it all right. I am well pleased with it, and could recommend your firm to my friends. LAWRENCE BRUNER.
Lincoln, Neb.

A BEE-KEEPER 77 YEARS OLD, AND A BICYCLE-RIDER.

I am now in my 77th year and do not expect to keep bees any more. I shake A. I. R.'s hand, and bid him farewell Tell him that I, too, ride the bicycle daily, and hope he will be able to do so when he is 77 years old. JOSEPH SINTON.
Henrietta Court, Pasadena, Cal

THOSE HONEY-JUMBLES—A SUGGESTION.

Please have your folks try putting a teacup of granulated sugar and one cup of water in making the honey-jumbles, instead of the molasses and a small quantity of water, as in the recipe. We prefer the sugar, but perhaps it may be because we did not have the right kind of molasses.
MRS. S. H. COLLINS.

TREATING SCABBY SEED POTATOES WITH CORROSIVE SUBLIMATE.

Friend Root:—My seed potatoes last year were very scabby. You advised me to treat with corrosive sublimate, which I did, and the potatoes were perfectly free of the disease. G. M. WHITFORD.
Arlington, Neb., Apr. 1, 1897.

[Full directions for treating scabby seed potatoes will be found on the last page of our new seed catalog.]

MORE ABOUT THE CRANDALL CURRANT.

I bought two Crandall currant-bushes some years ago; planted apart about 50 yards. They bloomed abundantly every spring, but gave only a few berries. I saw in some catalog that they appear to be male and female. Last spring I dug one of them up and planted it by the side of the other. Last summer you ought to have been here to see my bushes loaded with those big black Crandall currants. JOHN SLAUBAUGH.

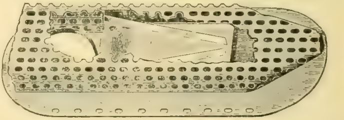
ANOTHER REPORT FROM THE LOGAN BERRY.

The last GLEANINGS asked for information about the Logan berry. It is a cross between the blackberry and raspberry, and has the color of the raspberry, but is sour and tasteless. A nurseryman near Watsonville plowed up ten acres of them. They were no good. A neighbor did the same to a smaller patch. The berries look fine in a slide, and they have sold as high as ninety cents, but the demand is light. The originator is Judge Logan, and I believe he lives at Santa Cruz.
Aromas, Cal., Mch. 26. ELSIE L. TORREY.

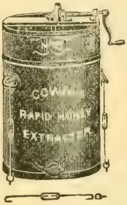
The A B C came all O. K. and I am very much pleased with it. It is very much improved since I ordered my last one.

I can not understand why any one should say that sweet clover is not good for stock. I have not very much of it, but what I cut and fed green was eaten up very greedily, after becoming used to it, just the same as alfalfa. In fact, stock must become used to any new thing. I turned three calves out this morning on blue grass. One of them is six months old, and I have not seen them take a bite of grass yet. They were turned out five hours ago. All the complaint I have heard about sweet clover is that it is a bad weed; but as it dies every two years, and comes from seed, I do not see how that can be very bad. J. T. VAN PATTEN.
Linn, Kan.

Porter Honey-House Bee-Escape.



Have you seen it? Just the thing to put on the doors or windows of your bee-rooms. Indispensable, you'll say, after you have tried it.
Price by mail, 35 cents.



Cowan and Novice Extractors.

These are the best. We are prepared to furnish on short notice, from any of our several branches, 2, 4, and 6 frame Cowans, and 2-frame Novices.
If you want the genuine, see that they bear our name.
A 36-page catalog sent free on application.

THE A. I. ROOT CO., Medina, Ohio.

NUCLEI FOR SALE. Three-frame nuclei on Langstroth frame, $2.25; two-frame, $1.85, with queen.
W. H. STANLEY, Dixon, Lee Co., Ill.

EGGS from ten-pound Pekin Ducks for sale; $1.00 per 12.
TILLIE INGLES, Mulberry Grove, Ill.

Bees for Sale.

In 8-frame Dovetailed hives, queens from imported mothers. Price $4.00 to $5.00 per colony.
EDW. SMITH, Carpenter, Ill.

TESTED QUEENS, The Very Best. Reared late last fall, 90c; untested, 75c. per return mail. I have had 30 years' experience with bees.
DANIEL WURTH, Falmouth, Rush Co., Ind.

For Sale.== Bees and Queens.

Queens, $1.00. Bees by the pound, $1.00. Nuclei, two frames, with queen, $2.50; one frame, $2.00
Also Barred and White P. Rocks, Silver Laced Wyandottes. Eggs for sitting, at $1.00 for 15.
MRS. A. A. SIMPSON, Swarts, Greene Co., Pa.

A Large Book Free!

To every new subscriber who sends us $1.00 we will send him our journal, **Gleanings in Bee Culture**, one year, and the book by A. I. Root, containing 190 pages, the size of this, entitled **What to Do, and How to be Happy while Doing it**, postpaid. The regular price of this work is 50 cents. If you prefer, the journal may be sent to a friend, and you can keep the book for yourself.

**THE A. I. ROOT CO.,
Medina, O.**

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Honey Column.

CITY MARKETS.

CLEVELAND.—*Honey.*—Fancy white, 11@12; No. 1 white, 9@10; fancy amber, 8@9; white extracted, 5@6; beeswax, 23@25. Honey moving very slowly, even at low prices.
A. B. WILLIAMS & Co.,
April 19. 80-82 Broadway, Cleveland, O.

MILWAUKEE.—*Honey.*—Fancy white, 13@14; No. 1 white, 11@12; fancy amber, 8@10; No. 1 amber, 8@9; white extracted, 6@7; amber, 5@5½; dark, 4@5; beeswax, 25@26. This week there has existed a fair demand for honey of all grades, both extracted and comb. And demands for *fancy* comb honey exceed the supply, while medium and lower grades are hard to move. Now, this is a *strong* argument for apiarists to remember; and aim at putting every thing possible on the fancy list and grade, and good results will follow.
A. V. BISHOP & Co.,
April 17. Milwaukee, Wis.

BOSTON.—*Honey.*—Fancy white, 13; No. 1. 11@12; white extracted, 7@8; amber, 6; beeswax, 25@26. As warm weather approaches, the demand for honey drops off; but there is still a fair demand for best 1-lb. sections in cartons. Beeswax wanted.
E. E. BLAKE & CO.,
April 17. 57 Chatham St., Boston, Mass.

CHICAGO.—*Honey.*—Fancy white, 12; No. 1, white, 10@11; fancy amber, 9@10; No. 1 amber, 7; fancy dark, 7@8; No. 1 dark, 7; white extracted, 5@7; amber, 5@6; dark, 4@4½; beeswax, 26@27. The market is bare of the best grades of white comb honey.
R. A. BURNETT & Co.,
April 17. 163 So. Water St., Chicago, Ill.

COLUMBUS.—*Honey.*—Fancy white, 12@12½; No. 1 white, 11; fancy dark, 8. While arrivals of white comb are light, the demand corresponds; would not advise any shipments without making direct inquiry.
THE COLUMBUS COM. & STORAGE CO.
Apr. 21. 409-413 N. High St, Columbus, O.

ALBANY.—*Honey.*—Fancy white, 10@12; fancy amber, 7@8; fancy dark, 6. There is some little demand for both clover and buckwheat comb honey, but most of the stock on our market is candied, and on that account hard to sell. No demand for extracted.
CHAS. MCCULLOCH & CO.,
April 20. Albany, N. Y.

CINCINNATI.—*Honey.*—No. 1 white, 12@14; No. 1 amber, 10@12; white extracted, 5@6; amber, 4@5; dark, 3½@4; beeswax, 22@25. Demand slow for all kinds of honey. Demand fair for beeswax.
CHAS F. MUTH & SON,
April 19. Cincinnati, O.

ST. LOUIS.—*Honey.*—Fancy white, 12½@13; No. 1 white, 11½@12; fancy amber, 10½@11; No. 1 amber, 9; fancy dark, 8; No. 1 dark, 7; white extracted, in bbls., 5¼; in cans, 7; amber, in bbls., 5; in cans, 5½; dark, 4@4¾; beeswax, 24@25. Stocks of honey well reduced. Good demand for choice stock both comb and extracted.
WESTCOTT COMMISSION CO.,
April 19. 213 Market St., St. Louis, Mo.

NEW YORK.—*Honey.*—Fancy white, 11; No. 1 white, 10; fancy amber, 9; No. 1 amber, 8; fancy dark, 6; white extracted, 5@5½; amber, 4@4½; dark, no sale; beeswax, 26@27. We have no changes in prices to report. Stooks are pretty well cleaned up, very little left of any kind. We have yet some demand for comb honey, and are selling some right along. We expect new crop of Southern latter part of next month, and judging from reports we received the South will have a good crop.
HILDRETH BROS. & SEGELKEN,
April 19. 120-122 W. Broadway, New York.

PHILADELPHIA.—*Honey.*—White extracted, 5@6; amber, 4@5; dark, 3½@4; beeswax, 26. No comb honey in our market, except odd lots broken down, no call whatever.
WM. A. SELZER,
Apr. 19. 10 Vine St., Philadelphia, Pa.

KANSAS CITY.—*Honey.*—No. 1 white, 12@13; fancy amber, 11@12; No. 1 amber, 10@11; fancy dark, 9@10; No. 1 dark, 8@9; white extracted, 5; amber, 4½; beeswax, 25.
C. C. CLEMONS & CO.,
April 19. 423 Walnut, Kansas City, Mo.

MINNEAPOLIS.—*Honey.*—Fancy white, 12@13; No. 1 white, 10@12; fancy amber, 9@10; No. 1 amber, 8@9; fancy dark, 7@8; No. 1 dark, 6@7; white extracted, 6@7; amber, 5@6; dark, 4@5; beeswax, 22@25. Market remains unchanged for both extracted and comb.
S. H. HALL & CO.,
April 19. Minneapolis, Minn.

DETROIT.—*Honey.*—Fancy white, 10@11; No. 1 white, 9@10; fancy amber, 8@9; No. 1 amber, 7@8; fancy dark, 7; white extracted, 5@6; amber, 4@5; dark, 4; beeswax, 25@26. There is barely any sale for comb honey. Extracted, fair demand at a tendency to lower prices.
M. H. HUNT,
April 20. Bell Branch, Mich.

FOR SALE.—$25.00 for one 500-lb. barrel of A No. 1 linn extracted honey, F. O. B. cars here; or 5½c in packages of 60 lbs. each. J. B. MURRAY, Ada, O.

Do You Use INK? Send your address, with 6 cents, to the **Handy Mfg. Co., Detroit, Mich.** They will mail you one package of **Handy Crystals** that will, when put with lukewarm soft water, instantaneously dissolve and make one-half pint of blue-black ink, worth 50 cts. Warranted not to fade, or thicken in the bottle.

BEES FOR SALE. In 8-frame Dovetailed hives, queens from imported mothers. Price **$3.00** to **$4.00** per colony.
EDW. SMITH, Carpenter, Ill.

FOR SALE. The Great French Strawberry, "LOUIS GAUTHIER."
The only large fruiting kind that bears on young runners. Old plant fruits in June, making runners which fruit in September. Write for particulars.
ARTHUR T. GOLDSBOROUGH,
West Washington, D. C.

Tested Italian Queens By mail, in July and August, 60 cts. each.
J. C. Wheeler, Plano, Ill.

Southern Cow-Peas.
One hundred bushels of the speckled or Whippoorwill variety, which is the earliest and best for general cultivation, will be delivered f. o. b. at $1.50 per bushel.
W. H. GREER,
Box 16, Paris, Tenn.

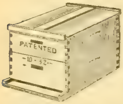
For Sale.==Bees and Queens.
Queens, $1.00. Bees by the pound, $1.00. Nuclei, two frames, with queen, $2.50; one frame, $2.00
Also Barred and White P. Rocks, Silver Laced Wyandottes. Eggs for sitting, at $1.00 for 15.
MRS. A. A. SIMPSON, Swarts, Greene Co., Pa.

A Tested Queen for 50 cts.

As usual, I am re-queening my apiary this spring with young queens, selling the tested queens, that are removed, at $1.00 each. These queens are fine Italians, right in their prime, being of last year's rearing. I am also starting a large number of nuclei in which to test queens, and can soon give purchasers their choice between queens of *this* or *last* year's rearing. You ask, Where does the 50 cent queen come in It comes in right here. To every one not now a subscriber who will send $1.00 for the **Review for 1897,** will send one of these tested queens for 50 cents.

There are thousands of bee-keepers in this broad land, who, if acquainted with the **Review,** would read it year after year, and it is to once get it into such hands that this special offer is made. I will also send the **Review** one year and 1000 strictly first-class sections for only $2 50. Or a Bingham Conqueror smoker and the **Review** for only $1.75.

W. Z. HUTCHINSON, Flint, Mich.



DANZENBAKER HIVE AND HONEY

won Highest Honors at the Fairs, and pays Premiums to purchasers

of 50 hives,	$50	for the best	100	Danzenbaker	sections
" 25	"	25 "	" 50	"	"
" 20	"	20 "	" 40	"	"
" 10	"	10 "	" 20	"	"
" 5	"	5 "	" 10	"	"

☞ Further particulars regarding the premiums, also special catalog of the Danzenbaker Hive and System, furnished on application. Address

FRANCIS DANZENBAKER, Medina, Ohio.
Care of The A. I. Root Co.

Nuclei==Order Now,

of the old reliable queen-breeder, a 2-frame (Hoffman) nucleus and warranted queen (Italian) that we will guarantee will produce a large colony by June, for $2.75.

Direct the Philadelphia branch of

THE A. I. ROOT CO.,

Wm. A. Selser, Mgr. 10 Vine St., Phil., Pa.

☞ A full line of all bee-supplies.

Root's Goods at Root's Factory Prices At Des Moines, Iowa.

Immense stock of the latest 1897 goods now on hand, and more to follow.

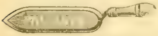
Thousands of Hives and Millions of Sections is our record, and other goods in proportion. We are sure to please you if the best goods at bottom prices and good service will do it. Eleventh annual catalog FREE. Address

JOS. NYSEWANDER, Des Moines, Iowa.

PRICES OF

Bingham Perfect Bee-smokers and Honey-knives.

Smoke Engine (largest smoker made.)	4 in. stove.	Doz., $13.00;	each, by mail,	$1.50
Doctor	3½ "	" 9.00;	" "	1.10
Conqueror	3 "	" 6.50;	" "	1.00
Large	2½ "	" 5.00;	" "	.90
Plain	2 "	" 4.75;	" "	.70
Little Wonder (wt. 10 oz.)	2 "	" 4.50;	" "	.60
Honey-knife		" 6.00;	" "	.80



Bingham & Hetherington Uncapping-knife.

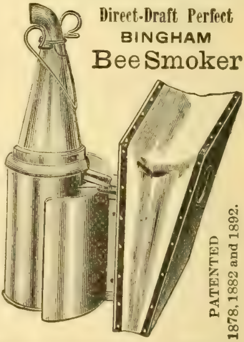
Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer, I write for a circular. I do not think the 4-inch Smoke Engine too large.
Jan. 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.

T. F. BINGHAM, Farwell, Michigan.

Direct-Draft Perfect
BINGHAM
Bee Smoker



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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

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STRAY STRAWS
FROM DR. C. C. MILLER.

A 4¼x4¼ SECTION, no matter what its thickness, will be ¼ inch thicker without separators than with, and will weigh nearly three ounces more.

VINEGAR can not be made from honey, says C. P. Dadant, in *American Bee Journal*, if you make it stronger than 3 pounds of honey to a gallon of water.

SKYLARK reports feeding boiled juice of Muscat grapes for wintering, and this spring he's boiling raisins and then pressing the juice for spring feeding.—*American Bee Journal.*

A HUGE BEE-TREE, in 1884, in Australia, according to a report in *Progres Apicole*, yielded 7700 pounds of honey. Wonder if a decimal point couldn't be worked in somewhere to advantage in that 7700!

IN SOME RESPECTS thick separators are better than thin; but a strong argument in favor of thin separators is that they are so cheap they can be thrown away when used once, saving the trouble of cleaning.

THE *Pacific Bee Journal* blames light-weight sections for demoralizing the Los Angeles market. The buyer buys light weights at 9 cts. by the *piece*, then uses that as a leverage to buy the next lot at 9 cts. a *pound.*

SOME FRENCH WRITERS say a queen will not go up to lay in a super if the direction of the combs crosses that of the combs in the lower story, unless there are drone-cells above. There seems no reason for that, but they claim it holds good.

DRAWN COMB with cells ¼ inch deep measures 8 feet to the pound, and thin foundation 10 feet. Is it worth while to make much fuss about 25 per cent more "gob" in a section, especially if that "gob" is mainly a matter of imagination?

THOSE DEFINITIONS on p. 286 are all good but the last, which might better be called "leveled comb," for it's "drawn comb" just as much before it's leveled as after. [Yes, I like your term "leveled comb;" and as we have only just begun the use of the word, GLEANINGS will adopt it in preference to drawn comb.—ED.]

TELL US HOW you fasten drawn foundation in sections. I suppose a Daisy fastener might be arranged to work, but hardly a Parker. But no one who has tried a Daisy would use a Parker. [We have been using the Daisy so far. It would be impossible to use the Parker, of course.—ED.]

DOOLITTLE, p. 286, favors natural swarming, and thinks if artificial increase is practiced it is greatly better to wait "till very near, or just at the close of the harvest." He gives such good reasons for this latter that it raises the question whether it may not be better than natural swarming, which comes generally near the beginning of the harvest.

APIS DORSATA, it is generally taken for granted, has a longer tongue than the common bee. John A. Pease questions this, seeing dorsata is an entirely distinct species. "The bear is a much larger beast than the cat, but he has a shorter tail, and it may be so with this bee's tongue.—*Pacific Bee Journal.* [See editorials regarding *Apis dorsata.*—ED.]

JUST AS MUCH FUN watching the bees get to work this spring as it was 35 years ago. [It is a pleasure to know, doctor, that you have not lost your old-time enthusiasm. Young chaps like you and I, even if there is a difference of 31 years between our ages, can not afford to lose our love for the business. Some people never grow old, and you are one of them.—ED.]

C. DADANT thinks it not necessary, but a damage, to give bees water in transit. They need much when flying, but not when shut in.—*Revue Internationale.* [We used to give bees water in transit, but gave it up principally because the water leaked out, softened the prepared sugar feed, and daubed the bees up. Personally I should be inclined to think water is an advantage, provided the difficulty mentioned could be successfully eliminated.—ED.]

HON. EUGENE SECOR is a good man wherever he has been tried so far, and he's likely to keep up his reputation as General Manager of the U. S. Bee-keepers' Union. [Yes, indeed, he is a good man all round. He is popular, influential, and a thorough-going business man, and one whom it is a real pleasure to know. With all his other accomplishments he is the poet laureate among the bee-keepers of America.—ED.]

THE PRICE of drawn foundation must come down a good bit before I can afford to fill sections with it, but I think I might afford it for bottom starters. [Of course, it is understood that our drawn foundation is now made on small dies, and at present prices could not be sold very cheaply. We hope, before the season is out, to have dies 5x8, at which time we shall be able to supply our friends with the product, at reduced prices. Next season, if the article proves to be the success that is now seems assured, we shall make dies and hydraulic machinery on a sufficiently large scale to supply the article in quantities, and at prices within the reach of bee-keepers.—ED.]

DR. L. LATINNE says in *Progres Apicole* that drone comb within the cluster of bees in winter is detrimental. Each empty cell has a bee, making the cluster 50 per cent less compact where drone-cells are. He thinks spreading the combs for winter is at least useless, as with empty cells the bees are practically clustered solid. [Before the advent of Hoffman frames, in our apiary we invariably spread the frames in the fall for winter, thinking it to be an advantage; but since using the self-spacers we have been in the habit of leaving the frames just as they are in summer; and our success in wintering has been just exactly as good; indeed, we have had much better results in the last four or five years. While we would hardly attribute it to the closer spacing it is very evident that just as good results can be and are secured. —ED.]

RIETSCHE, the inventor of the Rietsche foundation press, of which 10,000 are now in use, a press turning out 150 sheets in an hour, now uses a lubricant made as follows: Put into a little bag 2 ounces soft soap; stir the bag in 5 quarts warm water till the soap is thoroughly dissolved; then add 5 qts. cold water. [Strangely enough, we sent for and obtained one of these presses, and we made it work after a fashion, but it was altogether too slow. It now stands on a shelf, unused. It is doubtful whether such a machine would find a sale in this country, even if advertised at the same price as in Germany, because, at present prices of foundation, no bee-keeper could afford to make his own, especially if he could turn out only 150 sheets an hour. Foundation-making in this country is now left almost entirely to the large makers; and very many of the large supply houses can not afford to make their own, because they can buy cheaper.—ED.]

MY EXPERIENCE has led me to like thin surplus foundation better than extra thin. How does that compare with the general drift? What's the proportion of thin to extra thin manufactured? [The foreman of our foundation department tells me there is about a half more of thin called for than of extra thin, notwithstanding the fact that, since the advent of the new Weed process, we have made the *thin* about as light as the old extra thin, and the extra thin lighter still. The new process of sheeting makes the foundation so much tougher that we found we could make all our grades of foundation lighter; and I believe that our extra thin, light as it is, 12 to 13 feet, will be more acceptable to the bees than our old extra thin of 11 to 12 feet to the pound. Another season it may be possible to reduce the weight still more. Your experience that led you to prefer the thin was reported in GLEANINGS, and was at the time we were making foundation by the old process.—ED.]

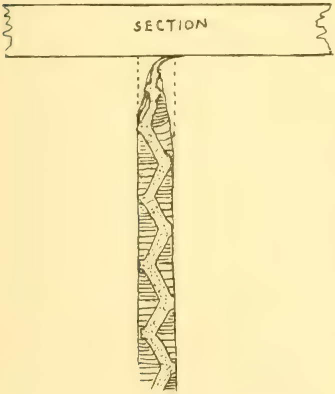
I DON'T KNOW every thing, Mr. Editor, but I *think* I know that you don't know what you're talking about on p. 286. I've used drawn combs by the thousand, and I don't care how deep the cells are so they're nice and clean, and don't come close enough to the separators to be bridged. [While you are perhaps able to use full-depth cells, the majority do not seem to make a success of it. While I may be wrong, I base the reasons for my opinion, as stated on p. 286, on two things: Honey stored in shallow cells, the cells being drawn out gradually as they are filled, acquires a certain delicious flavor that I do not believe will be found in honey stored in deep cells at the start. Theoretically, at least, honey will ripen in shallow cells more perfectly than in deep ones. A good many people always believe that comb honey is a little finer-flavored than extracted; and I believe the real foundation for this belief lies in the fact that honey in sections is generally produced from foundation (comb-building keeping pace with the storage), while the extracted is almost invariably stored in full-depth extracting-combs. My second reason for favoring the shallow-depth drawn (or level) comb is that the bees have a chance to work the cell walls over, where, if they were full-depth, they would let them alone. In any case, full-depth or not, one object of leveling is to take off the top of the cells the slight ring of wax that the bees always leave, because the cell walls themselves without this ring would not be strong enough to withstand the constant travel of the bees.—ED.]

Ridge-Pole Musings

By R. C. Aikin.

FOUNDATION FASTENER.

It seems to me there is yet much imperfect work in fastening foundation in sections. I have used the pressure method, pressure and heat combined, and heat alone. Here is a test to prove to any one who will try it that pressure or mashing it on is not good work: Press on a piece of foundation, then bring it into position in which it should hang, and look closely at the point of contact with the section. Here is an enlarged view of how it will appear.



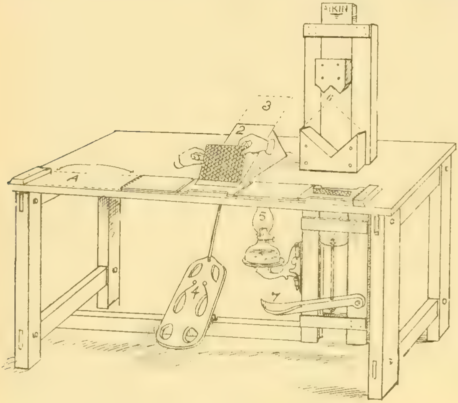
The foundation is pressed into a wedge shape, the thin edge of the wedge adhering. If the wax would adhere before being cut partially off, there would be no difficulty; but as the pressure increases, the wax is pressed *out* thinner; and by the time the pressure is heavy enough to make the wax adhere, the foundation is about half cut off; and as the sheet is bent to bring it to proper position, a portion peels from the wood.

I have a rude machine that I have used for several seasons, and it does good work. It is original with me, is not patented, and is not on the market, so do not order one, for I am not manufacturing them. It is a hot-plate foundation-fastener and section-press, in one machine. I wish, however, to speak particularly of the fastening work, for that is the more important.

The plate stands at an angle of about 45 degrees, and the section is placed under the *lower* end. I put the foundation in before the section is folded. Here is the method. Before me at easy working height is a table (1). Above the table is arranged the plate (2), pointing toward me and downward, while under the table is the lamp (5) for heating, and a tread (4) that throws the plate forward (toward me) and downward, sliding at the angle at which it is set. The sections are previously dampened at the *grooves only*, by pouring a small stream of water through the grooves before opening the crate, or bunched. I pick up a section and put it on the table, and by the foot-lever throw the plate out till it rests on the section *just where the foundation is to go on.* While the plate was at rest, the wax left on from the previous fastening accumulates on the very end, and when it comes down on the next section the hot wax is at once, as it were, fried into the grain of the wood. The plate must be so hot that it will instantly melt the edge of the sheet of wax when applied, and the wax must be quickly applied and the plate withdrawn *before the section is heated*, and the foundation set in the line of the melted wax on the section. The plate must be hot, the section and foundation *both cold*, then the wax sets or hardens quickly. Just as soon as the foundation is in place, and almost as rapidly as one can handle the sheets, the wax will be cool enough to almost support the foundation in an upright position. I use a bottom starter and put it on first, then put on the full sheet and support it with my fingers while I pick up the section and bring the ends together with the foundation in a hanging position, place the section in the press, and fasten it, and at once set it in a super.

The illustration shows the starters on in such a way that, when the section is in the hive, the dovetailed corner is down. This is the way many use it, and has in its favor the fact that the dovetailing does not show so plainly when the section is set right side up. Some also prefer them so because, otherwise, when they take hold of the top to lift a section, the corner is apt to pull loose. The former idea in regard to appearance has some little weight, though not enough to be seriously considered; but the latter has no weight whatever, because when once a section is properly filled with honey any pull that would pull out the top is altogether unnecessary in any manipulation.

I prefer to put the bottom starter where the illustration shows the full sheet being put on, and the full sheet or top starter on the end where appears the bottom starter, so when I lift the section from the table to place in the folder I have the full sheet *hanging* instead of *standing*, and the dovetailing comes up under the head-block just above the numeral 6. The folder (6) is set just as close to the plate as it can be, to have it as nearly as possible immediately in front of me. As the pressure necessary to close the section is much greater than that used in operating the plate, I put the folder to the right, that the right foot may operate the lever (7) in closing the section.



I think all will see at a glance the manner of handling the section while putting on the foundation. The little blocks at either end of the table are so placed that, when the section is shoved to one end, it is just right for the bottom starter; and, shoved to the other end, just right for the top starter.

The illustration I have prepared for this is not just as I have my machine, and not what it should be. The machinery I use in operating the plate and folder is not all shown. It would require two or more engravings to show it all. This, however, shows the manner of getting the foundation on and the section closed, which is what I wish to write of here. To illustrate in detail, so that one may copy exactly in building such a machine, is rather beyond my skill as a draughtsman, and no doubt more than the editor would care to have engraved.

As for the work of this machine, it is first class. When it is operated rightly the fastening is so perfect that the foundation will part somewhere else before it will let loose from the wood.

The only difficulty is in getting the section closed without injuring the fastening by springing the top by the heavy pressure needed to set the dovetailing, or by allowing the sheet of foundation to lop over when neither soft nor hard. It requires some pretty good judgment to handle it just right, and something that is very hard to tell.

The reason for putting foundation in before folding is because of the difficulty of getting the fingers in to hold the foundation when the section is folded. I had intended to devise something to hold the foundation, and to cut off the required length, though up to this time I have never had the time to accomplish it. These things might be developed faster if some inventive genius could receive the proper stimulus; but as it now is, the man who invents some good thing is *usually* more of a benefactor than benefited. I have been told—but can not say as to the truth of it—that some manufacturers of large means and extensive works keep one or more experts in their establishments, whose duty it is to study out better methods and improvements.

That bottom starter is a grand thing. I have just read in the *American Bee Journal* some of Editor York's experience in getting a lot of broken-down comb honey. The total shipment was 2300 pounds, and 550 of that broken down—almost one-fourth of it. I have had a little break down myself, but I know it is possible to have sections so firm that nothing short of smashing the case would break the honey loose from the section. I have had some such, and know whereof I speak, and know that bottom starters are a great help in getting such. There should *always* be a bottom starter, whether only starters be used or full sheets.

The producer of comb honey for the general markets can not afford to do any half-way work. There must be no foundation pulling down in the section, and there must be no breaking-down of the finished product in the case. I know what it is to have fine plump finished sections, and I know what it is have such poor finish that I hardly dared to hold the section sidewise for fear the honey would drop out of its own weight. I must say that our honey is put on the market in a crude way, and especially is this true of the extracted product.

Loveland, Col.

[I agree with you that the heated-plate plan gives a much better fastening, and I may add the work is more rapidly done. While some prefer two machines in one (folding the section and fastening the foundation) we prefer two machines—one for each operation. We find the two are more rapid, simpler, and cheaper than any combined machine we have ever operated; and we have tried a good many. We have never tried the Aikin machine, and, of course, are not prepared to speak of its merits. —Ed.]

If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.

THE GRANULATION OF ALFALFA HONEY, ETC.

LACK OF BODY AND PROPER MANIPULATION CAUSE OF GRANULATION; ALFALFA AND SWEET CLOVER THE HONEY-PRODUCING PLANTS OF THE FUTURE

By Emerson Taylor Abbott.

I have read with considerable interest Mr. Aikin's article on alfalfa honey; but as his experience and mine are not in full harmony, I wish to make a few remarks on the subject.

There are some things which occur under the operation of what we call natural laws with that unerring certainty which enables us to say positively that they are so and so, but the granulation of honey is not one of them. The reader will more thoroughly understand what I mean when I say that I now have in my possession alfalfa honey of last year's crop which has shown no signs of granulating. I have had alfalfa honey from the same party, Mr. Oliver Foster, of Los Animas, Col., for a number of years, and my experience with it has been invariably the same.

I know that, generally speaking, alfalfa honey granulates very quickly; but I am inclined to think that this is due more to the way the honey is handled than to any inherent tendency in the nectar of the alfalfa plant. I am well aware that there is a wide variation in the body and appearance of the honey found in the open market which is known as "alfalfa." I am not inclined to think this difference results from the locality in which the nectar is produced. I think it was Dr. Miller who offered the suggestion that alfalfa from different localities might show different characteristics; but I hardly think this is true if the honey is absolutely pure alfalfa, and is handled in the same way. I think that the variation in color is due almost, if not entirely, to the fact that the nectar of other flowers has been mixed with that of alfalfa. The "body" and flavor of the honey is due largely to the method of handling it. Especially is this true of the "body," a very important factor in the make-up of a fine quality of extracted honey. I am also of the opinion that the tendency to granulation is largely due to a lack of "body." This is strikingly illustrated in the basswood honey of my own State, when it is thrown out of the combs before it has been thoroughly ripened by the bees. In a word, I incline to the opinion that the great tendency to granulate shown by extracted alfalfa honey is due to improper manipulation, and I would advise the other extracted-honey producers of Colorado to take a few lessons from Mr. Foster, and to work for *quality* rather than *quantity*, and then they will not say that all alfalfa honey will granulate in a very short time. I know from experience that it will not.

I do not think there is any finer honey in the world than extracted alfalfa when it is properly handled from start to finish. It is the only honey that I have ever seen that can be used for general sweetening purposes without spoiling the flavor and desirable qualities of some articles of food into which it is put. Especially is this true of all drinks, such as tea or coffee, which, by the way, I seldom use.

I look upon alfalfa and another member of the same family, sweet clover, as the honey-producing plants of the future. The honey produced from the nectar of these two plants is very much alike, as is also their habit of growth, even though one is a biennial and the other a perennial. Opinions seem to differ about as widely as to the merits of sweet-clover honey as they do as to alfalfa; and I am inclined to think that this also results from a mixture of the nectar of other flowers with that of melilot. All of the pure sweet-clover honey that I have ever seen (and I have had considerable experience with it) has been uniformly of the best quality. My experience has been confined entirely to the honey from the white variety. There may be some difference in the honey produced from the yellow or blue varieties. The former runs wild in Great Britain, and we are told that the "herbage is relished by cattle." The latter is a native of Africa, but is cultivated in Europe, and is used in Switzerland for flavoring a certain kind of cheese.

I apprehend that the two plants are sometimes confounded, as there is also a yellow-flowered variety of alfalfa, which is a biennial the same as melilot. The name, Bokhara clover, being applied to it, tends to confirm me in this opinion, as lucerne is extensively cultivated in that country, and I find no mention of sweet clover as one of its products.

St. Joseph, Mo.

[The alfalfa honey that has been produced for us by W. K. Ball, of Reno, Nev., has been no more inclined to granulate than any other honey. In fact, I believe I should have said that it was less so. The honey that we have received has been of heavy body and of extra fine quality.—ED.]

SUPPOSED GRANULATION OF ALFALFA COMB HONEY.

THOSE HONEY CARAMELS OF DR. MILLER'S; CREATING A MARKET FOR GRANULATED HONEY.

By F. L. Thompson.

On page 115 Mr. Aikin braces himself for a thumping. I'm not big enough to administer it, but I'd like to ask a few questions.

Is it not true that there is a marked difference between early and late honey in this respect? Is it not true that early alfalfa comb honey, kept in a warm dry place, will generally pass the winter without granulating? Is it not true that early honey constitutes the bulk of the crop? Is it not true that there are enough No. 1 sections among the late honey to account for the prevalence of the general idea that alfalfa comb honey candies quickly, and that that idea would never have been formed in the minds of persons who had never bought any but early honey, or in the minds of honey-producers who had taken care to keep the two crops separate? How is it that not more than two cases were candied among 6000 pounds sold in March, 1893, by a Denver bee-keeper? In 1892, 60 lbs. of my early honey were kept until late the following spring before being used up, without showing any signs of candying. Others besides myself have had the same experience. The same season, the late honey was candied before it was taken off the hive. But that was an exceptional year for the rosin weed Mr. Aikin refers to. (I think its botanical name is *Grindelia squarrosa*.)

Referring to Dr. Miller's suggestion on page 113, I do not think honey caramels are what I am groping after. They may be delicious, but they have to compete with any quantity of saccharine-sweetened glucose confections. But honey itself competes with nothing, in deliciousness, at least, because, so far, nothing in this country imitates its precise flavor. Any kind of honey confections is not honey itself. I am not against all possible uses of honey, but I don't think it pays to make much fuss over them, for the reason that the same amount of energy expended in extending the consumption of honey itself pays far better.

The children of my customers got tired of honey just as quickly as adults, if I may judge by what was told me.

Referring again to Mr. Aikin's remarks on marketing extracted honey, here is some unexpected and very important confirmation, from a Colorado bee-keeper: "We put about 8000 lbs. of extracted honey on the market, in lard-pails, last year, and think it the best way we have found. The three-pound lard-pails hold five pounds, and the five-pound size seven and a half of honey. We fill them from the extractor, and let them granulate, then put on a neat label with instructions for liquefying, and state that Colorado honey will always granulate if pure. Three years ago we could hardly sell a pound of it granulated. Now we can not produce enough to supply the home demand. This last year we have had orders from several towns and many other places, and not one complaint."

Now, who says it does not pay to sell granulated honey? I don't think it comes very near the truth to say that "people never read labels."

Does not the distrust of marketing granulated honey arise from allowing the honey to granulate in the hands of the consumer? Has anybody ever made a fair trial of selling honey *after* granulation, and failed? Let him hold up his hand, and tell us why.

The above was written before Geo. L. Vinal's article came to hand. I see he says, "Not half of the people read the directions." But whether they do or not, how did those four tons of granulated honey get sold in one district? When people buy granulated honey, they can't help knowing what they are doing; but when they buy something that needs careful explanation *afterward*, we all know how many of them will be so smart that you can't tell them any thing.

Denver, Col., March 23.

HOW TO KEEP INSECTS OUT OF COMB HONEY.

By Prof. A. J. Cook.

Your inquiry from H. Price Williams, forwarded to me, has awaited opportunity to answer until now. Mr. Williams wishes to know if there is a paper made that is absolutely insect-proof. He says he wants something that he can wrap cases of comb honey in so that it can be kept until sold. Mr. Williams states that in his region (Miami, Florida) red ants and every other conceivable insect abound in inconceivable numbers.

The problem which Mr. Williams sets for solution is very much the same which confronts us who make collections of insects and plants for our cabinets. There is, however, one difference in the cabinet—we are not careful to avoid ill smelling substances which might be detrimental to honey. The first way we fence against insects in our cabinets is to use boxes which are so tight that no insect can gain admittance. I know from quite a long experience in producing and keeping honey that the same means may be successfully used in protecting our honey from our insect-marauders. A good way to make a cover that fits tightly (of course, there is no difficulty in making a perfectly tight box), is to set a rubber in a groove so that the cover will press upon it when closed. This is cheap, and absolutely efficient, as I have proved. I believe this would be the cheapest way to protect honey and also combs from insect depredation. We also find that certain substances like napthaline, carbolic acid, and kerosene oil, are so offensive that their presence is almost sure to keep the insects from making an attack upon our museum specimens. It might be, however, that these substances would injure the sale of the honey, and so they should be tried before being generally adopted.

I think that, in most cases, simply wrapping such packages in paper will prevent insect attack. The thing to be sought is to keep the odor of the honey from passing through the paper so as to attract the insects. This might make it necessary to seal the package hermetically. To do this the bee keeper has an easy method right at his hand. He has only to dip the paper in hot melted wax, getting just as little wax as possible on it. Then if he wraps the sections while the wax is a little warm he will so seal the package that no odor of honey can escape, and so the insects will not be attracted. I should have great confidence that this would work, but of course it would have to be tried before we would warrant it. I should also have great faith if we used paraffine instead of the beeswax.

California is much like Florida in this respect. The climate is so delightfully genial the year round, that it is a perfect paradise for insect life. The ant is on deck, gay and festive, every day of the year, and thus ever ready to become a nuisance in pantry or storehouse. For this reason extracted honey is more suitable for production in California than is comb honey. This is another reason, then, why the California honey-producer may well turn his attention to the production of extracted rather than comb honey. When the honey is thoroughly sealed in the tin cans it is entirely safe from any such molestation.

Claremont, Cal., April 1.

[I know that bees seem to have an aversion for paraffine paper, or, in fact, of any thing paraffined; and I was under the impression that certain other insects seemed to show a dislike to its slight flavor of kerosene. A package of comb honey can be wrapped in it, I am told, so that it may be sealed hermetically by placing a flatiron over the folds until the paraffine melts, when the iron is released.—Ed.]

BEES AND GRAPES IN CALIFORNIA.

VALUABLE TESTIMONY FROM ONE WHO PRODUCES HONEY BY THE 40 TONS AND RAISINS BY THE CARLOAD.

By G. F. Merriam.

In the discussion of the "bees and grapes" question in the papers, I have waited, hoping some one else in this State would take up the subject; but as no one has done so I will give my experience, which runs through 16 years.

I happen to own a vinery planted in 1880 to the raisin grape and wine varieties. I have kept from 100 to 500 colonies of bees within ¼ to ½ mile of this vinery all these years, and have made raisins by the carload, and honey in 30 to 40 ton lots at the same time; so I presume I may write understandingly.

One year I shut my bees in their hives four to five days at a time, releasing them for an hour or so just before night, closing at daylight the next morning; but it was a useless labor, because bees came from every point of the compass to do the same work I tried to keep mine from doing. My experience tallies exactly with that of the Dadants and others, who own large vineyards—that bees never touch a fresh grape until the skin is broken by birds or some other means.

In raisin-making, the grapes are laid on trays made of thin shakes 2x3 feet square—each tray holding about 20 lbs. of fresh grapes, laid one layer deep only. In the picking and laying out, more or less of the grapes are slightly loosened from the stems, whence a tiny drop of the sweet juice comes out; and as the trays are laid out on the drying-beds, or in the rows between the vines, the pickers are followed by a swarm (almost) of bees, which run over the bunches and speedily clean up all of these little drippings.

Within ten minutes after a tray is laid out to dry, all the bees have left it and gone to the next later picked, and so they follow the gang of pickers day after day.

The bees let the grapes alone then for about ten days. When the upper half of each bunch of grapes has turned brown, small wrinkles appear in the skin of the grape. As long as these bunches remain dry, the bees let them alone; but if a heavy dew or fog or light shower falls on the grapes, early in the following morning, while the skin is yet wet and soft, and while the grooves in the skin furnish a chance for a bee to get hold, they will tear open the skin of a few of the sweetest grapes, and for several days from three to fifty bees will be seen on that bunch, patiently eating away at the half dried grape, and keep at it until only seeds and skin are left. A good-sized bunch will keep a gang of bees busy over a week before it is all gone. The bees act, while eating these grapes, as if they were eating candy. They get quiet, and act as if half torpid, and scarcely fly when brushed off.

The loss to the raisin-maker by this is not very material—furnishing only a little more offal when run through the grading-machines, which are large fanning-mills arranged so the sieves sort out and drop the different sizes of raisins into separate boxes.

In wine-making, if conducted outdoors, the crushed grapes attract the bees in clouds, and force the wine-maker to do the crushing in a house.

The year 1894 was exceedingly dry here; and by fall, when we began making wine and raisins, there was scarcely any honey left in the hives, so the bees carried in the juice, which dried in the cells into a brown, sugary mass. This juice was placed around the brood, the same as honey, and the next spring these combs in colonies that had become disgusted with the sour ill-smelling stuff, and gone off to hunt a sweeter and better home, were unfit to use without cutting out this candied grape juice. In most instances the bees carried this out like candied honey; in others it was cut out and rendered for its wax. I think it is a detriment for bees to have access to grapes in quantities sufficient to more than meet their daily wants. That bees will live and breed and do fairly well on fresh grape juice alone, in a season of drouth, I am certain.

Three Oaks, Cal.

[Your testimony is very valuable, friend M., and our only regret is that there are not more such men as yourself who are willing to give from their store of practical experience.

It is pretty well settled now that bees do not themselves puncture fruit, although we have to admit that they often help themselves freely to that which has been broken in handling or which has been punctured by birds or other insects. Although the bees do bother in raisin-drying time, it is evident that friend Merriam manages to produce raisins and honey simultaneously, without any very great inconvenience. This goes to show that the damage on the part of the bees can not be very great. That being the case, the honey-producer ought to be able to make some reasonable and fair compensation to the raisin grower in his own immediate vicinity. If the damage is only slight, a very moderate compensation would suffice. We shall hope to hear from friend Merriam again.—ED.]

"CAN EXTRACTED-HONEY PRODUCERS AFFORD TO BE HONEST?"

A TEXAS BUG-RAISER'S OPINION.

By W. W. Somerford.

I see in GLEANINGS, page 193, the question raised, "Can extracted-honey producers afford to be honest?" I say, yes—surely they can if the chance for cheat and rascality lies along the line of glucosing honey in order to get a little more out of a crop; for unless they can beat me selling honey in the way of *getting a good price*, they would be left buying glucose at the price it brings down here (taking it home, and mixing the stuff in). Hauling, handling, and paying freight on the stuff would more than cost the *little possible gain* a chap *might get.*

My experience has taught me that people who buy honey know just what it is. I used to be so well up on peddling honey that I fancied I could tell a would-be customer at sight. Just one good look at his face generally told me whether there was much chance to make a sale or not. Then when the question comes to an honest man, with an honest man looking him *square in the face*, "Is your honey absolutely pure?" what kind of stuff would a fellow be who could face an honest man and sell him glucose to take home to his wife and family for an *extra treat?*

Peddling, I am sure, would be the only chance for a fellow to make way with a honey and glucose mixture; and as peddling is something bee-keepers who produce honey in large quantities won't generally do, except in drummer style, there is not any danger of glucosed honey being sold by bee-men in quantities. I have sold honey often by the barrel, to grocers who would conduct their mixing experiments (with me present) before purchasing; and I am sure there are not many honey-eaters who can't easily detect 25 per cent of glucose in ordinary honey, taking ordinary glucose to make the mixture.

So, in conclusion, I will suggest, that, if a man has energy enough, with sagacity enough (mixed in) to sell glucosed honey at a profit, he is amply qualified to go at and make a success of some business that will pay him many more dollars, and give him much more satisfaction than he could ever get peddling out a fraud to his neighbors. A good bee-keeper can make $300 or $400 a month during the time he has his bees to attend to, and it would take a hustler with glucosed stuff to clear $100, or even $50 a month.

Navasota, Texas, Mar. 28.

[I am glad you have answered the question in the affirmative; but I do not believe I could agree with all you say. I wish it were indeed true that all glucose mixtures, if disposed of at all, would *have* to be sold by the laborious and disagreeable method of peddling. But I am afraid many consumers are so gullible, and so unfamiliar with the real flavor of pure honey, that they get the glucosed honey without the medium of a honey-peddler. They buy it right in the open market because it is cheap and "looks nice."

I once took the ground, as you do, that there were not very many honey-eaters who could not detect 25 per cent of glucose in honey. While I now believe that ordinary commercial glucose can be recognized in such quantities, I know there is a *fine* quality that could not be *certainly* detected when used to the extent of even 50 per cent as an adulterant. Generally speaking, however, I believe it may be true that one who knows the flavor of good honey could detect the ordinary commercial glucose even when only 10 per cent is used—at least, that was my experience if I may call myself an expert in glucose-tasting; for you may remember that, two years ago, I was able to detect, almost unerringly, by the mere taste, glucose mixtures of 10, 25, 33, 50, and 75 per cent, and, in most cases, the approximate percentage of adulteration, just by the mere taste. But the glucose used as an adulterant was the commercial article, the brassy metallic taste of which is very pronounced, even in small percentages of adulteration.—ED.]

FANCY COMB HONEY.

ARE THE GRADING RULES IN FORCE TOO RIGID?

By T. F. Bingham.

On page 45, present volume, I notice objections to the present plan of grading honey. An old adage is, "He builded wiser than he knew." That is the upshot of the present grading. Said plan contemplates only the benefits accruing to the bee-keeper having honey to sell. Nothing is best which is not good for all.

The conditions which render the grades fancy are not merely the looks and appearance but the quality. It is true, that irregular thicknesses of combs do not impair the quality of the honey, which, though ill formed, has been made under the same practical conditions as that which has been stored according to the higher art of modern bee-keeping.

The word "fancy" means, as used in grading comb honey, vastly more than shown. It means the best honey stored when that particular crop or flower product was approximating its climax, and not its decline. The combs are white, made of *new wax*—not of old gnawings brought up before new wax was secreted. The corners were filled out because the honey-flow was strong; capped up because the honey was ripe and ready to cap.

Honey made under such conditions should bring more money than honey put up in drawn combs, half of which has been brought up from the previous years' gathering, to make room for brood, and capped with scraps of propolis, or left uncapped along the edges. When exposed to cold and damp, it has undergone such changes that it is made faulty in other respects than in appearance.

Were it possible for the bee-keepers to raise the fancy or best honey, and market it directly to the consumers, only a very short time would be required to establish a market almost without limit for fancy honey. The consumer would soon find that *fancy* meant more in the *selection* than the word "honey" implies. It is from the general meaning of the word honey that consumers lose their appetites for it. "Fancy" honey stimulates the appetite and increases the demand.

Farwell, Mich.

[Mr. Byron Walker, and some others, take the ground that the "Fancy" in the Washington grading is drawn down too fine. In fact, Mr. Walker once advertised that he would pay a dollar a pound for all honey that would be sent him conforming *exactly* to the requirements laid down in the Fancy. He says he was perfectly safe in making the offer, for he never got a pound. Mr. Bingham's point, however, is good, a *fancy* article of honey should be *fancy*. Perhaps the trouble is our description for that term is not comprehensive enough.—ED.]

WHAT ABOUT THE SELF-HIVER?

HOW FAR WAS IT A SUCCESS?

By C. H. Dibbern.

Somehow a strange silence seems to have settled on the self-hiver of late, and I suspect none of the various inventions have proved very successful. Judging from my own experience, extending over a number of years, I should say that the perfect self-hiver is an impossibility; and yet the impossible of to-day may be the accomplished fact of to-morrow.

No doubt many a bee-keeper, having an out-apiary or two on his hands, is anxiously looking for something of the kind—something, you know, that will hive the swarms when they issue during his absence, change over the honey-cases, remove old colony to a new place, etc. One man wrote me that he wanted a hiver that he could put on his hives in the spring, and place the empty hives, provided with honey-sections, on them; and when he called around in the fall, to find the swarms all safely hived, honey-cases all filled, and every thing lovely. That would be very nice, and almost any one could go into bee-keeping, and make it a success.

Now, the trouble with all self-hivers is that where bees issue out from the hive they will also return again when they miss their queen. If the queen is trapped in a new hive, or in a queen-trap, only a handful or so of bees will remain with her; and if more bees are not given her within a few days, she will either die or get lost in some other way.

My latest device, as described in GLEANINGS, has proved reasonably successful in my own experience. If I am present when the bees swarm out, I have only to close up the direct entrance; and the swarm, upon their return, finding their queen in front of new hive, and no way to get back into their old hive, have no choice but to go into the new hive. In this way I get good-sized honey-gathering swarms, and I usually change over the surplus arrangement at once, but it will not do to leave the old hive more than a day or two without giving them a direct entrance of their own. At first I thought it would be a nice thing to allow the bees from the old hive to reinforce the new swarm for a week or two; but I soon found that perhaps, for want of water, the bees in the old hive would destroy the unsealed brood, and in about two weeks the hive would contain nothing but comb and a very few bees. The new colony would prosper greatly, however, and possibly this may be a point for those bee-keepers who want no increase.

The main advantage I claim for my device over the queen-trap is that, when a swarm issues during my absence, almost any member of the family can take a smoker and close the entrance to old hive; and when I return in the evening I find the full swarm nicely hived, and can then fix them in a moment to suit me. With the drone-trap I should have to divide the bees, as but a small handful would be found with the queen in the trap.

Some of the drawbacks I have discovered are that the bees dislike traveling the whole length of the new hive before they can fly. They are also liable to become sulky, and try to gnaw holes where the bridge covers the space between old and new hive. Still I believe I can overcome these objections by a more perfect arrangement, and allow more space through the zinc—four rows of perforations instead of two; but further experimenting is necessary to make it an entire success. Until we have something better, bee-keepers had better stick to the Alley queen and drone trap for hiving-purposes. Indeed, where one can be present, or have some competent person there when swarms issue, nothing better can be desired. With my arrangement I usually allow the bees to swarm out once through the swarming-device, and return before preparing the new hive to catch the swarm. This saves much work in preparing new hives for each colony, many of which might not cast a swarm at all. As the back of my device will allow bees and queen to pass, but exclude drones, I cover it with wire cloth when used as a queen-trap. This enables me to see readily when a hive has swarmed during my absence.

I have no patents or swarmers for sale, and the above is written simply to show what progress has been made.

Milan, Ill.

[The self-hiver (the Pratt) worked very well with us. Several summers ago it hived over half our swarms; and while I was pleased with its working at the time, it required special fixtures, some tinkering and patience to make all go right. I am not sure it was very much ahead of entrance-guards or the Alley trap.—ED.]

BEE-ESCAPES.

HOW THEY SAVE TIME, AND PREVENT ROBBING.

By F. A. Snell.

The bee-escapes now in use are of much value, and I would not think of doing without them, even if the cost were much more than it is. Every apiary should be supplied with them. There are times when I do not care to use them very much. In removing surplus comb honey, if this be done during a good honey-flow, I simply remove the supers from the hives and place them to one side in the bee-yard, in the shade, and in a short time the bees will have left them, and I then carry them to the honey-room.

In extracting honey under the same conditions as to honey flow, the work can be done by the shaking-off plan very well; yet for this work I rather prefer to use the escapes, as it causes less confusion among the bees, and their work is not retarded in the least; and I think the work of the operator is thus made more pleasant. It is essential that the escapes be put under the supers to be emptied 24 hours, or the day before the extracting is to be done, so the supers may be clear, or nearly clear, of bees. With all colonies I put over the brood-chamber a super of empty combs; the escape on top of this, and the filled super over this. By so doing, the bees have abundant room in which to store the honey being gathered, and seem to leave the upper story a little sooner. Another advantage is, that none of the newly gathered nectar is in the supers to be emptied, which would be the case where only one super is used and the shaking-off method practiced. This gives us honey of a little better quality than if the escape were not used, and no pains should be spared so slight as this to better the grade of honey. The above applies to times of good honey-flow more especially. With us these occur during warm weather, when, if the honey be cooled a little by the exclusion of bees, no inconvenience from this results. Later, as the honey-flow begins to slacken or is closed, comes a time when the escapes pay their cost very quickly, to the delight of the apiarist. Before the advent of the escape, taking off surplus at such a time was very unpleasant work, and required the best efforts of an expert to keep from demoralizing the whole apiary, especially when extracting. Now all this is changed, and an unpleasant task made easy, by the escapes. Thanks to inventive genius.

During a time of scarcity we do not in our apiary take off any surplus except by the aid of these. The supers are simply raised up (using a little smoke to keep the bees under control), the escapes placed, the super set on, and we pass on to other hives until each super has been arranged as described. The comb-honey cases will be cleared of bees in a few hours, and can be removed and taken to the honey room. The extracting supers are managed the same, only a longer time is needed to get the bees out of these. Thus hundreds of pounds of honey can be taken from the hives, and at the same time perfect order reigns throughout the apiary. Work goes on in perfect order. How different from the old way, under same conditions! The air was then filled with robber and angry bees stinging each other, and by no means neglecting their owner. I have used the Dibbern, Hastings, and Porter escapes. The Porter has proved to be the best one, after a thorough comparison. The bee-escape has come to stay as a boon to bee-keepers, and one of the most useful implements.

Milledgeville, Ill.

[Our experience has been almost identically yours. I can not conceive how any one can prefer the shake-off brushing plan to the bee-escape method. To shake the bees off the comb causes more or less spilling of honey not yet ripened down, and for an hour or so that colony is so completely broken up that honey-gathering is entirely suspended. After crawling into the hive, if they do not stop to do it before, they have to lick each other off; then if it is during the robbing season there are plenty of other bees that are prying their noses into the other bees' business; then the shaking and brushing necessarily results in killing and maiming a few bees at least, and the possible loss of the queen; and, moreover, it requires a large expenditure of strength to shake the bees off from every comb. My last experience resulted in blistering my hands and giving me a lame back for several days afterward; and I vowed then and there that for me, at least, the bee-escape should be hereafter used.—ED.]

HONEY VINEGAR.

WHY IT "EATS" PICKLES; HOW TO MAKE GOOD HONEY VINEGAR; WHY IT CAN'T COMPETE WITH THE VINEGAR OF COMMERCE; A VALUABLE ARTICLE.

By E. Whitcomb.

On page 234 Mr. C. Davenport complains that honey vinegar eats or softens pickles. This is not necessarily the fault of the material of which the vinegar is made, but because the vinegar is too strong. Vinegar made from any other material, and of double strength, will soften or eat pickles; and we think if Bro. Davenport will reduce his vinegar with water nearly a half, or to about forty-grain strength, he will not complain of its eating or softening pickles. One pound of honey ought to be sufficient to make one gallon of good vinegar. However, its strength is entirely regulated by the amount of material used; and it can be made of triple strength, or about ninety grains. Where an inferior or low-grade honey is used, the fluid, before it is finished, should be run about twice through a generator, during which process it should pass through bone charcoal.

I have been unable to notice any material difference in the strength or flavor of vinegar where the generator process is used. Of course, dark honey will make a darker-colored vinegar, while the lighter honey will make an article almost as clear as water.

A honey-dealer in Ontario wrote me, after the Lincoln convention last fall, inquiring why we did not manufacture honey vinegar, and thus create a market for low-grade honey. The vinegar of commerce doesn't cost, for the material there is in it, to exceed one cent per gallon, either made from corn or any of the cheap syrups, and sold on the market as pure cider vinegar; and it can be made pure without any acids or adulterations at the above price, barring the labor of making it; or, in other words, the barrel costs more money than the vinegar which it contains.

There is no article of universal use in the household, upon which the general public have so little information as vinegar. The whole secret of vinegar-making quickly hinges upon how much you can expose the fluid to the air at a temperature of seventy or more degrees of heat; and good vinegar may be made from cider, honey, or syrup, within the space of 24 hours; and the reason that we can not make vinegar out of honey, and thus create a market for the low grades of honey, is because no one will sell his honey at less than one cent per pound. If he did, honey vinegar would go into competition with corn and syrup vinegars.

This is not material with the man or woman who has a few pounds of inferior honey which they desire to convert into vinegar. We would use one pound of honey to a gallon of soft water, setting in an open barrel, and covering with thin cloth to keep out insects and dirt; and after the barrel is filled we would add a gallon of good yeast to every barrel, stirring up occasionally for the first three weeks, when the result will be very good vinegar. When sufficiently strong, draw off with a siphon, such as can be drawn without sediment, and make the second barrel in what is left in the barrel, and you will find that the second lot will make much quicker than the first.

Of course, the strength of the vinegar will be gauged entirely by the amount of honey used. Vinegar is an industrious fellow; but when he has used up all the materials you have given him to work on he will stop; nor will he stop until he has accomplished this.

Of course, it must be borne in mind that a temperature of above 70° must be kept up, either by the sun's heat or by artificial means, during the process of making.

Friend, Neb.

HOW I SOLD HONEY.

SOME OF THE DISAGREEABLE FEATURES OF THE BUSINESS.

By Alice Harding Crossman.

While I was very busily engaged preparing dinner I heard a loud knock. I opened the door, and found a tall gaunt old man, apparently a gentleman:

"Have you honey to sell?"

"Yes, sir."

"What kind?"

He waited at the door while I brought a sample. Then he gave me a lengthy description of his physical condition. He had nervous dyspepsia. Did I think honey would hurt him? I told him it would do him good. I could smell something burning. I darted into the kitchen, and found the potatoes burning. When I returned, the man had decided he would take half a pound if I could let him have a can to put it in. He hastily explained that he would find if it agreed with him. I found a baking-powder can. Guess I had better get a supply of old cans if my business keeps like this. Dear me! a whole nickel's worth! I knew this old man was very rich. Five cents wouldn't pay for the time I had lost and those potatoes! It will be better soon, I thought, as I set the table. Shortly after dinner I opened the door to see a gentleman, really and truly a gentleman. He stood with hat in hand. "This is Mr. ——'s place, I believe?"

"Yes, sir."

"I wish to get $1.00 worth of honey."

"Do you wish to see it?"

"No, I know the honey. Can Mr. —— deliver it?"

"Yes, sir."

He gave me his card, and, with "good-day," walked away.

"Now. he is a daisy. Yes, sir; if all of my customers were like that."

But I noticed the address was that of an old customer. After all, the sign had not brought this one.

I had just reached the baby when another knock. A German this time, with a large sack of beeswax. He said he wished to sell. But Mr. ——, I knew, didn't want it.

"Vel, I leaf it here; he take it."

He put the sack down, and asked questions about the sign and honey. At last he went away. Not another customer came that evening. I felt glad.

The following morning I was hoping no one would come, when, rap, rap! and there was an old man with a ten-pound lard-bucket. He came in, and told me how much he paid for honey during the war. He at last told me he wanted honey, but wanted to taste some of it first. I went into the kitchen. He followed, and sat down. I gave him a "taste." He thought it was not as good as honey he bought during the war, and we asked too much for it. He said he would take ten cents' worth. When I weighed it the bottom of the bucket was scarcely covered. He seemed content to sit and talk.

"I can't waste my time," I thought. I proceeded to skim my milk. Then he gave me full directions how to make butter, and also gave me all the "inside secret in raisin' bees." Yes, he was very wise.

I had finished my milk before I opened the door for a little boy who wanted honey for his ma, who had a bad cough. I filled his cup, and he departed. After receiving another lecture from the man in the kitchen I found he was really going to leave. Then I found a little time to get dinner. I was trying to finish washing the dishes, when I heard a knock. I hastened to the door. Four ladies, handsomely dressed, stood on the porch.

"Will you come in?" I asked.

"Yes, thank you, we have time," one said.

They filed into the parlor. When they were seated they began to talk. Yes, they were very talkative. At last they decided to buy a fifty-cent bucket of honey. It took them just one hour to decide. Oh how glad I was when they went away!

I had just put the baby to sleep, when knock! knock! It was for two young women this time that I opened the door. They had such merry laughing faces I said, real pleasantly, "Come in."

In they came, and sat and talked until sundown; but they bought two bits' worth of honey. I laughed as they rode away on their donkies; but my head ached so bad I concluded I was tired of selling honey.

The next morning I found I was sick. My husband went for a colored girl. When she came I said, "Millie, do the best you can."

After a good nap I felt better. I thought I would go to the kitchen; but while I hesitated, there was a knock at the door.

"Go quick, Millie," I said to the girl. She obeyed, and came back followed by the strangest looking woman. She stood staring at me. Millie looked at me and grinned.

"Good-morning," I said.

After a little she said, "Mornin'! are you sick?"

"No, not much," I answered, smiling.

She was very slender; her face was small, and had a pinched expression. She wore an old-time short-waisted calico dress. She wore a hat—ah that hat! It was almost as large as a peck measure. I never did see any thing like it before. It seemed to be made of shucks. It was lined with green silk, and the outside was loaded with green ribbon and bright flowers, with huge bows of bright-yellow bunting. The poor little head looked miserable under that hat.

"I come to git some honey, fur I seed you had some to sell. I wuz goin' by, an' I jest thought I'd get some. I live 'way up in the forks of the river. I'd like to get some honey if ye'll let me have a bucket to put it in. I don't want but a dime's worth."

On she talked in a queer, squeeky voice. I wondered if she would ever stop. She told me —I think she exhausted her supply of words— that she had determined in her mind she would get a bucket. I at last said:

"Go out to the honey-house; and if Mr. —— is there, ask him about it."

She went, but she bought a bucket and the honey. She came back through the house.

"I got me some honey. I jest thought I'd come back an' see if you knowed of anybody what wanted work done. I don't want hard work, though."

"I will let you know if I hear of any one who wants you," I replied. "Did you say Mrs. Beat or Miss?"

"I'm a young lady—that is, I ain't married yet, but guess I am old 'nough, though."

With a few more explanations she then decided to go.

"Fo' de lan' sake! did you eber see de likes ob dat?" Millie said, laughing.

"No, I never did," I answered.

The following day I was myself again, and was determined not to feel worried. I was making my light bread, thinking how brave I would be, when bang! bum! bum! some one was trying to knock down the front door. I tried to get the dough off my hands. Open went the door. In came that horrid old man, carrying his fruit-jar half full of honey. "Gracious! what can he be bringing back that honey for?" I asked myself. He came blundering along.

"Got more honey?"

"Yes, sir."

"Then fill up this jar."

"Why," said I, "you haven't used—"

"No, but I was comin' back this way, and I was afraid I'd get out," he said. "But go 'head with your fixin's; I can wait."

I finished my bread, and he talked on. Then came the fun of filling that jar. He could not tell how I was going to know how much honey I had sold him. At last I made him understand. The honey was ready; he could go, but he sat down and talked about his chickens, his cows, and calves.

When he went away at last I was determined to have that sign taken down. "I must quit trying to sell honey, or go crazy. It might do in some places, but not here," I thought.

In the evening three men came horseback. They had been drinking. I was nervous when they left, and was glad to have the company of a woman who had come to buy ten cents' worth of honey. When my husband came in that night he asked innocently:

"How is the honey business?"

I just gave up and said, "I am tired; take down that sign. I just can't sell honey this way, and be tormented so. They don't come, buy honey, and go away, but they make me waste my time, spoil my cooking, neglect the baby, and scare me half to death."

How the partner of my joys did laugh!

"I thought you would get tired."

"Well, I tried, but I can't keep house and sell honey."

PETTIT'S NEW SYSTEM OF PRODUCING COMB HONEY, AGAIN.

A REPLY TO BRO. DOOLITTLE.

By S. T. Pettit.

Brother Doolittle, I was pleased at your kind reference, on page 119, to my article on page 51; but you did not seem to see that I was not discussing the question as to whether the field-bees go right up to the supers and deposit their loads of honey in the cells, or whether they hand it over to younger bees who do the depositing. However, I did not intend to say any thing at variance with the fact that field-bees *generally* give their loads of honey to younger bees; but I am not so sure that they always do so under all circumstances.

Possibly you will point me to what I said in the following: "Now, as the bees come in they generally go up somewhere near the center; and as they find the sections advanced well nigh to completion the honey must go beyond." Well, I confess I might have been more specific if I had thought it necessary. We say the sun rises, the kettle boils, John Smith is building a house, when in reality he has let the job to a builder, and he neither pushes a plane nor drives a nail. But why, under my system, do bees fill and finish the outside sections as rapidly and as well as they do any other sections in the super? is the question at issue. Let us consider the matter.

THE EFFECT ON THE SUPER WHEN THE HIVE IS UNDER A SHADE-TREE.

We all know that, if a hive of bees be placed under the side of a spreading tree or under any other obstruction, so that the bees all come in at one side of the entrance, said entrance being the full width of the hive, the work will progress more rapidly on that particular side, whether working for comb or extracted honey, than on the opposite side. The facts are simply as follows: Where the bees go in and up, there the young bees will in a measure congregate to meet them. If they go in and up at the center, the young bees will congregate there, and the outside sections will be more or less neglected; but when the field-bees distribute themselves, and go up at the sides and rear end of the hive, the young bees distribute themselves also to meet the field-bees where they go up; and as the dividers (see page 51) preserve a double bee-space, or, rather, two bee-spaces, at the outsides, room is provided and preserved for a double portion of bees—a nice little cluster along both outsides of the sections, and so the work at the outsides keeps pace with all other sections in the super.

Right here I may be allowed to make the claim that, under this system, more honey, and that in better shape, can be taken than under the old way of either comb or extracted honey. I do not use dividers for extracted honey, but I use the wedges for distributing the bees.

Brother D., what you insinuate about my bees being weak, or what you say about their getting strong enough, needs no reply further than to say that they are strong enough, and ready the year round, to take any crop of honey that may come along. I have no trouble in building up every spring; and, further, my hives are so constructed that the section supers will hold 36 sections each; and when the clover season sets in I put on these big supers, and the bees are glad to go up to get "standing" room. Of course, I select the strongest for comb.

Your caution about stretching the bees over too many sections will do good; but after all it is also a serious and losing mistake to fail to give the bees room according to their strength and the honey-flow.

To several swarms last year I gave 72 sections each in the start, and to some I gave 108. It is only fair to say that the latter got some bees from other swarms, and all the sections in these were well finished. But it is better to give too few than too many; but who can tell, sometimes, just what to do?"

Belmont, Ont., Can., March 10.

[I didn't see it so strongly at first; but the more friend Pettit has to say regarding his new system the more I am convinced that he has got hold of a valuable idea. It is well worth a trial by practical comb-honey producers as it will cost very little. The plan is given on page 51 of our Jan. 15th issue.—Ed.]

J. VAN DEUSEN'S DEATH.

We have to record the passing from earth to a wider sphere of usefulness the veteran Justus Van Deusen, in the eighty-third year of his life.

We do not know what heaven is like; but we have a right to assume that those qualities of heart and mind that we are commanded to cultivate here will, under perfect direction, find wider scope and more ample employment in the hereafter. We rejoice that our friend was spared the period of decrepitude that usually falls to the aged. Attendants at our national conventions, no matter how distant, have usually found him present, displaying the vigor of body and mind of men a score of years his junior. His presence was delightful, and a visit with him was an incentive to the ways that lead upward. As his nephew, Capt. Hetherington, well says, he was a fine example of the Christian gentleman.

From early manhood to 1848 he was engaged in the jewelry business. In the year following, the Van Deusen family built the woolen factory at Sprout Brook, which he ran for many years until he converted it into a comb-foundation factory. He was a fine mechanic, and was satisfied with nothing but the highest grade of material and workmanship. It is but justice to say that every skein of yarn and every foot of foundation turned out from his factory had worked into it the trademark of his life—the best. From small beginnings, because of the prejudices of bee-keepers against the flat-bottom cell, the trade in this foundation has steadily increased to large proportions; and the greatest tribute ever paid Mr. Van Deusen's good judgment is the recent adoption, by the most extensive manufacturers of bee-keepers' supplies in the world, of the flat-bottom cell in their highest grade of improved foundation.

He was the father of the late C. C. Van Deusen, the originator of several valuable inventions in bee-keeping, and whose tragic death, together with his wife, on their way to the World's Fair, so shocked the bee-keeping world. P. H. Elwood.

Starkville, N. Y., April 13.

[Photo of J. Van Deusen has not come to hand. We will try to give picture in our next. —Ed.

THE NEW DRAWN FOUNDATION.

ARGUMENTS IN ITS FAVOR FROM A STRONG MAN

By P. H. Elwood.

You are to be congratulated on the success of your deep cell foundation. Should you never make it a commercial success it is a great mechanical triumph, and calls forth the highest praise from all fair-minded persons. I showed your first sample to Capt. Hetherington, and he pronounced it *wonderful* — quite a contrast to the dog-in the manger treatment it receives from certain sore-headed persons. Many of those who have in the past used and sold heavier foundation than your deep cell now find that there is entirely too much "gob" and "fishbone" in yours, where a part of the wax is taken from the septum and put into the side walls.

Some of us for years have asked bee-keepers and dealers, as a matter of principle, to abstain from the use or sale of thick foundation for surplus. What we have failed in accomplishing by appeals to the conscience, you make plain by one little jab at the pocket book. "Great is Diana of the Ephesians."

One of the chief merits of flat-bottomed comb foundation for surplus is the fact that it usually contains less wax than the natural base as built by the bees. The greatest objection to it with us is that the bees, during a scarcity of honey, will gnaw it more than the thick foundation. Occasionally they will remove the entire side walls, leaving only the plain sheet, after which it is entirely worthless except for remelting. What is needed to prevent this destructive work is a higher side wall, say one of a little less than ⅛ of an inch in height. Whether a side wall of sufficient height and thinness can be put on with a roller machine I can not say. I would not care for deeper cells than is sufficient to prevent gnawing. A deeper cell will cost more, of course, and, except for bait comb, is not needed; for with this start the average swarm will complete all the comb necessary to store their honey. Then, again, this depth of cell could be readily transported, while the deeper would be very bulky, and liable to injury. For bait comb and other special purposes there will be a demand for the deeper, if such can be made successfully.

I had written so far when the April 1st Gleanings came with the editorial on the deep-cell foundation, and I consider it complimentary to me that we so completely agree on nearly every point presented in this able article. Especially would I emphasize the fact that drone comb is usually thicker than worker. I have also noticed that both drone and worker are much thicker when built in large sheets in the brood apartment than when built in the small surplus-receptacles. It is also a fact that drawn-out comb licked clean after extracting is much harder than the same [illegible] covered with honey. In the latter case, however, the honey stored in them is much more liable to candy. Before the production of flat-bottom foundation, and when foundation for surplus probably weighed fully twice what it does now, Mr J. E. Crane, of Vermont, visited us. He sunk the knife into a plate of honey, and, on meeting much resistance at the midrib, looked up and said, "Do you use foundation in your sections?" I answered, "No." Again he pushed, and again he looked up with inquiry, surprise, and I mistrusted doubt, written on his countenance. The section of honey he had sampled was probably a bait comb wintered over, and drone.

For some years we have used in our surplus the Van Deusen flat-bottom foundation weighing not less than 12 ft. to the pound, and we have been spared any experiences similar to the above; for on the average our honey has less wax in it than natural comb honey. To disarm criticism, and because wax used in making foundation is not of as good quality as the newly built comb, I prefer to have the base somewhat thinner than the bees make it.

The samples from your new machine are just received and show a marked improvement over the first. With my present knowledge, until a thorough trial proves me wrong, I prefer the [illegible] 12 ft. to the pound. This must prove very acceptable to both bees and consumers. The part of the side wall that the bees sometimes neglect to thin is at the very bottom, where it is attached to the midrib. I notice in your [illegible] the cell wall. The cell walls and septum of these samples are so thin, and the quality of the wax is such, that, after repeated trials, I have not succeeded in chewing a mouthful into a "gob." Thick foundation made of poor wax has the "gob" at both start and finish. I do not wish to flatter you; but I believe you have the most valuable invention of recent years in bee-keeping.

I do not share the opinion of some, that this invention, nor any thing else, will stop the production of extracted honey. Comb honey can not take the place of extracted for hot cakes and other domestic uses; also large quantities are used in the manufactures. The proposed tariff on sugar will soon increase the wholesale price of extracted honey, while the retail price in the home market is usually two-thirds the price of comb honey, and a much greater quantity can be retailed of the former. Allow your honey to remain on the hives until well ripened, and you will have no trouble to dispose of a large quantity.

Starkville, N. Y., April 20.

[After such an able article as this it is unnecessary for me to add any thing; for the writer shows that he knows what he is talking about. It is well known that Mr. Elwood is one of the most extensive bee-keepers of the world. His large experience, his thorough knowledge of the business, his scholarly attainments, and gentemanly bearing, lend great weight to what he has so ably said. One such article as this is worth hundreds of articlesof abuse directed at our name and honor at the instigation of a single competitor.

Here is another strong article from a bee-keeper of international reputation who feels deeply indignant over the unfair and unreasoning methods that have been taken. He prefers to use a *nom de plume*.—ED.]

NOTHING BUT NOISE.

THE NEW DRAWN FOUNDATION AND ITS ENEMIES.

Adulterators? Yes. Who are adulterators? Nearly all of the great multitude of bee-keepers of the world. Who says so? A late issue of one of the bee-papers. How do you make that out? By their own words; for every writer of that symposium is using, and has been using during the past, something which is just as much of an adulteration as the proposed drawn or deep-cell-wall foundation which they are now crying out against. If there is any difference between a comb foundation with heavy rudiments for cells, from a thirty-second of an inch to one-sixteenth of an inch high, and a comb foundation having those rudiments extended to three sixteenths of an inch on each side, thus forming the same amount of wax into short thin cells, nearly as thin as the bees themselves make, then the writers of those articles in that bee paper have failed to show it. If the one is an adulteration, then the whole foundation business is an adulteration, and they are sitting in the same "saddle" with the Roots and Weed in this matter, as the words of their own mouth prove—they not giving any practical argument to the contrary. Come, gentlemen, be consistent, and give us some proof in this adulteration matter, or else throw the whole foundation business overboard as a sinful thing. You say you use only enough foundation to secure combs built straight in the sections, and to start the bees in the same as quickly as possible. Is not the new deep-cell-wall foundation for the same purpose? and will it not answer that purpose better? Why have you not been shouting to your customers in the past, "Second-hand chewing of wax," "shipped with tallow," "stinking hides," "old lard," and "in-contact-with-all-nastiness" wax, before, when you have been pushing the same thing on the public, for lo! these many years? You must have forgotten that all commercial wax goes through a cleansing process with water, etc., by the Dadants, the Roots, and others, and yourselves probably, that takes out all impurities and filth (if there is any) before it is made into foundation, deep-cell-wall or otherwise.

I believe Doolittle told the truth in that bee-paper, when he said that this deep-cell-wall foundation was much nearer perfection for what it was intended than was the foundation which was accepted "with the tossing of hats" by all, with its advent; and there is not a thing, *nor has there been any thing uttered by the opposition* to shake the truth of his assertion. Many have thought that comb foundation was something sent from God (as are all good things which are appropriated by men), and if so (and who has doubts in the matter?) then this deep-cell-wall foundation stands in the same category, so far as any proof to the contrary has been given. Would it not be well for the opposers to turn and read Acts 5: 34–39, inclusive, till they can give us something besides prejudice to sustain their position?

While much more fair than many of the others, I am surprised at some of the things written by Bro. Hutchinson. The desire to prejudice against the deep-cell-wall foundation is quite apparent in one of his articles. In this he is only doing what he considered very unfair in the sugar-honey controversy. Some sensitive people, while eating honey at my house, have piled up bits of wax about their plate, when eating honey, before the advent of foundation, equal to any thing that I have ever seen since, when the same persons were eating comb honey from sections which were filled with foundation; while the one who found no wax in his comb honey before foundation came, finds no wax now. There has been such a desire to prejudice against this deep-cell-wall foundation that matters have been only partly stated, all evidently having been given with a desire to create an opposition to it, and not in its favor.

Go on, friends Root and Weed; for in this abuse and desire to prejudice, instead of argument, you have no reason for complaint. If those opposed choose to fire in the air, why should you complain? Keep right on with your work. Waste no time in answering statements that are not arguments. Do not spend time and effort in trying to defend yourselves from these personal attacks. The utmost you need to do is to remind the opposition (unless something is presented different from what there has been) that your personal character or ability is *not* the "question before the house," and that your opponents, in attacking you personally, concede that they have no argument to produce.

From what I have read so far, as put forth by the opposition, I am constrained to give President Lincoln's little story, in closing: In conversing with a friend about the way his administration was criticised and attacked, he said: "After all, it reminds me of a couple of immigrants fresh from the Emerald Isle. They were making their way westward in search of work, when, one evening, coming suddenly upon a pond of water, they were greetod with a frog chorus—a music they had never heard before. Overcome with terror they clutched their sticks and crept forward. The enemy could not be seen. At last a happy idea seized the foremost. Stepping to his companion's side he exclaimed, "And sure, Jamie, it is my opinion it is nothing but noise!" JUSTICE.

[Both of these articles came unsolicited; for we have not thought it necessary to scour the whole bee-keeping world writing letters (as the opposition has) to secure sympathizers. With the exception of the party mentioned we have not received one word of protest to the drawn foundation (and we have sent out now hundreds of samples) from our subsribers and patrons. On the contrary we have received scores of letters of encouragement and praise at the success of the new foundation.—ED.]

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE. BORODINO. N.Y.

STARTING IN BEE-KEEPING.

Question. — Having been persuaded by a friend to take GLEANINGS IN BEE CULTURE, through the reading of the same I have a desire to start in bee-keeping. Seeing that you have a beginners' department in that paper I am led to ask you how many colonies I had better purchase to start with. I had thought of buying 50 colonies. Do you think that number would be as many as I should buy?

Answer.—My answer would be, that said number would be from twelve to twenty-five times as many as any beginner should buy unless he has considerable knowledge of the business before thus starting into it. The beginner should guard against going recklessly into bee-keeping by putting his last dollar into a business he knows nothing of. It is this getting crazy over a business which looks to be a good thing, but with which we are not acquainted, and investing all we have in it, expecting to make a fortune, which ruins so many. To be successful in any thing, a man must "grow up" in it by years of toil and study till be becomes master of the business, when, in nineteen cases out of twenty, he will succeed. I was brought up a farmer, and educated by my father as such, so that, were I to change my occupation at any time, it would be to that of farming, unless I could have time to study up some business more to my liking before I left bee-keeping. Pardon a little personal reminiscence, given by the help of old diaries.

In the winter of 1868-'9 I became interested in bees by reading the first edition of "King's Bee-keeper's Text book," which chanced to fall into my hands. Next I subscribed for one of the bee papers, read Quinby's and Langstroth's books, and in March bought two colonies of bees and the hives which I thought I should need for two years, paying $30.00 for the whole. The year 1869 being the poorest one I have ever known, I had but one swarm from the two colonies bought, and had to feed $5.00 worth of sugar to get the bees through the winter. In 1870 I received enough from the bees to buy all the fixtures I wished for 1871, and a little to help on my other expenses from the farm. So I kept on making the bees pay their way, as I had resolved, during the fall of 1869, that, after paying the $35, I would lay out no more money on the bees than they brought in, believing that, if I could not make the three colonies pay which I then had, I could not three hundred.

In the fall of 1872 I found that I had an average yield of 80 pounds of comb honey from each colony which I had in the spring, which was sold so as to give me $559 free of all expense incurred by the bees, except what time I found it necessary to devote to them.

That season I procured an extractor, and being determined to give the bees the care they needed, and knowing that the time the bees needed the most attention would come in haying and harvest time, I hired a man to take my place in the hayfield. It so happened that he commenced work on the day basswood commenced to bloom. Previously I had hived a single swarm in a hive filled with empty combs, and concluded to devote them to extracted honey. The man worked sixteen days at $1.75 per day; and I extracted, during those sixteen days, honey enough from this colony to sell for a few cents more than enough to pay the man for his work. I state this to show that one new swarm of bees, properly worked, was equivalent to myself in the hayfield for sixteen days; yet how many, keeping from 30 to 50 colonies of bees, leave them, to go into the hay and harvest fields, and then tell us bee-keeping does not pay! You can hire a man to take your place in the field; but if you expect to become master of the bee-business, so as to make it pay, you can not hire a man to take your place in the apiary during the honey season; for, according to my opinion, it takes much more skill to be a successful honey-producer than it does to do the ordinary work on a farm. When the bees do not require any special attention, then they can be left, and the apiarist do other work, as he may have time; but the bees must not be neglected for a single day when that day will put them in condition to bring us dollars in the future, if we are to be successful bee-keepers.

In 1874 my honey was sold so as to bring me $970, free of all expense from the bees, not counting my time, and I now began to think of giving up the farm, but finally concluded to hold on to it one year more, to make sure that I could make bee-keeping pay as a specialty. After deducting the expenses of the bees from the sales, I found that I had the next year (1875) the amount of $1431, and hesitated no longer, but gave up farming and embarked in the bee-business, with nothing else as a source of revenue, although since then I have had other "irons in the fire." Now, had I bought 50 to 100 colonies to start with, the expense in starting would have been not less than $300 to $400, which, in all probability, I should have lost in the business, for I should not have had a knowledge equal to the doing of so large a business on the start.

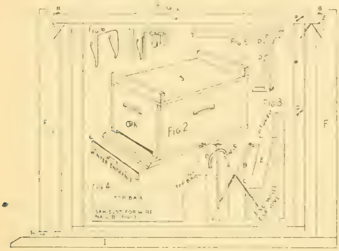
My advice to the questioner, and all others who think of trying bee-keeping as a business, would be, procure two or three colonies of bees; post yourself by reading and experimenting with them, as you can find time to do from the business you are already in, and thus find out for yourself which is the better for a livelihood—the business you are already in or keeping bees. If successful, after a series of years you can give up your other business if you wish to. On the contrary, if bees are a failure in your hands, then you will be but little out for having tried your hand at it.

Heads of Grain, FROM DIFFERENT FIELDS.

THE BOOMHOWER HIVE AND FRAME.

Mr. Root:—I want to give you a little idea of the style and construction of the hive I use. We have 300 colonies, and have used this style of hive for the last four years, and some of them longer. I have discarded all Hoffman frames. We used them two or three years, but found them too expensive and unhandy for rapid handling, crushing and killing too many bees. I have now passed my twentieth year in this business, making it my only occupation. I spent one year in A. E. Manum's apiary and queen business. I have in that time spent a small fortune in experimenting, but have at last a perfect hive at a little cost, and simple to make. I will boldly make this assertion: That I with this hive can do the work, and take up less than half the time required in any other style of hive. If you want to see something nice and handy, I will send you a complete hive by freight. I know you will laugh at the ease it can be handled with. You can't possibly crush a bee in handling the frames. A blind man with one hand can run bees in it.

You will see there is a complete bee-space all around the frames, and no possible chance for the bees to glue them fast at any point. The frames are always free to handle: and. when the follower is in, not a frame can leave its correct position in the hive. I want nothing heavier than ⅜ inch thick for top-bars. The staples are no hindrance in using the uncapping-knife, as I know we can and have extracted 1800 lbs. of honey from the hive in less than three hours, with two of us, one to take them from the bees and one to run the extractor.



F. BOOMHOWER.

Gallupville, N. Y., Jan. 25.

[This is the hive and frame I promised (page 128) to show, although, as I have already pointed out, some of the principles are over 20 years old. The new *end*-spaced Hoffman, I think, would generally be preferred to frame as above shown; still, others may think differently.—ED.]

NATURAL COMBS IN WIRED FRAMES.

In perusing your March 1st issue I was somewhat surprised to find a great discovery had just been made and commented upon as something new in bee-keeping, and the great possibilities for bee-keepers to produce natural combs by having them built directly in wired frames, straight and true, without the aid of foundation. I must say that I could not refrain from a broad smile at our friend, the discoverer of this new (?) process.

To me this process of getting fine straight combs built in wired frames is quite old, as I have been practicing it successfully for more than ten years, and have had many hundred if not thousands of true and straight combs built in my apiaries.

Two or three conditions are requisite for the best results, and must be strictly observed in getting these combs built true in wired frames, and true on the wires. The frames should have a V starter or its equivalent, and the hive must stand level from side to side, and be elevated one or more inches higher at the back than front.

If brood-combs are desired, a foundation starter can be used about one inch wide, to induce the bees to build more worker comb; and if drone combs are wanted, place your wired frames with or without foundation starters, in or near the center of a populous colony that is gathering, and well stocked with honey and brood; or wired frames placed above the brood in the second story of the hive will generally be filled with drone or store combs for extracting.

Yes, the progressive bee keeper can get fine natural combs, built without the aid of foundation, by observing the above suggestions, and compete with the closest competition, if the present methods of adulteration are not taken into account. J. W. WINDER.

New Orleans, La.

CAGES FOR SENDING QUEENS LONG DISTANCES.

I am much pleased to inform you that the last two queens you sent me arrived in good order. I am glad that you have adopted my suggestion and made the cage deeper, and also ventilated one end only, and left the other snug and warm. The cage as now made is nearer perfection than ever. There are no small passages, as in the Manum, for the dead bees to close up, and the bees can now adapt themselves to the temperature through which they may be passing, by moving from one end to the other. I have now been corresponding with you for several years in regard to the construction of these cages; and while you have maintained all along that the food had much more to do with the successful conveyance of the queens than the cage, I have insisted that the construction of the cage is equally important, and I think so yet. I am not yet convinced that honey as a part of their rations conduces any thing to success, and I'll tell you why: By the mail before last I received 8 queens from you, of which 4 were dead; and in one of the cages with the live queen the honey had not been touched. The candy, if properly made, will never run and daub the bees, and it contains *all* the essentials necessary to sustain the bee to the end of its natural life, and honey can't do more. When the time arrives I intend to send you 4 queens by the same mail, put up in cages similar to your latest, but in two of them I will fill the "honey" compartment with candy, and you can carefully note the condition of those cages containing a part ration of honey and those with none.

In regard to those two queens that I received last, in one cage the queen was the only inmate alive, but she was so lively that she was amusing herself by flying around the cage. The other cage, however, made my heart jump, for it contained 33 *clean, lively* workers, and only 17 dead ones. By the same boat I received two queens from Jennie Atchley, put up in a partitioned box similar to those sent out from Italy, with one small frame of honey only for food, and about 100 escort bees. In one compartment the queen and all the bees, with the exception of a solitary worker, were dead, while the other compartment contained two live workers and the queen.

So far this season I have received 14 queens from you, of which 6 have come alive. From other dealers I have received 11, out of which number only one has come alive. How does this speak for the superiority of your style of cage? You are on the right track, and practical perfection is not far off. H. L. JONES.

Goodna, Queensland, Aus., Nov. 20.

[I can't agree with you in thinking that the honey does not conduce to success. In two other shipments sent about the same time as yours, *all* the honey was used, and but a part of the candy. If you tear up the capping I think you will find that the honey was used. We found, owing to the lack of room and the coating of paraffine, that the bees tunnel under the capping. At first sight the honey appears untouched.—ED.]

LUCERNE OR ALFALFA HONEY UNJUSTLY ASSAILED; QUALITIES OF OTHER HONEYS.

Some months ago there appeared in your columns a letter from Mr E. Lipper, editor of the *Aust. B. Bulletin*, in which he referred in most disparaging terms to the quality of lucerne honey. Surely you, Mr. Editor, and the many bee-keepers of your land who have given such high opinions of the quality of alfalfa honey, can not have recognized that it was your old friend who was thus, though under another name, being abused. Neither a footnote, nor any article that I have noticed since in your paper, makes any defense of alfalfa honey.

At a recent meeting of the Hunter River Beekeepers' Asso., Mr. Munday, the pioneer of modern bee-keeping in this district, drew attention to this particular portion of Mr. Lipper's letter, and elicited the fact that the experience of every bee-keeper present directly differed from that given by Mr. Lipper. A few years ago, when, after the great flood of 1893, there was none but young lucerne-fields, the yield was light, and the quality nearer like that described by Mr. Lipper; but now that the plants have become strong and deep-rooted, the yield is good, and the quality in color, density, flavor, and aroma, such as to suit the most fastidious taste, pleasing eye, palate, and nose.

At the last Maitland show it was an exhibit of lucerne honey that carried off first honors, and the same was the case at Singleton.

Surely Mr. Lipper has made a mistake in slandering the quality of this honey, gathered from the only source yielding much honey, near the town where he resided for many years.

Trusting you will find room for the insertion of this letter, written by instruction of the H. R. B K. A., as an expression of the unanimous opinion of those present at that meeting, I remain, etc.,

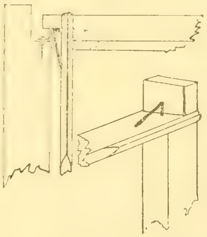
MICH. SCOBIE, Hon. Sec. H. R. B-K. A.

West Maitland, New South Wales.

[The matter to which you refer appeared on page 570 of last year. I have again read over the paragraph, and I do not see that the character of alfalfa is assailed, for I could hardly allow that without a protest. Mr. Lipper simply says the honey is very thin—almost sweetened water—and that he has not been able to get it thicker. I simply supposed that the climate had something to do with it, for the same honey in this country is beautifully thick, and of the very finest quality. You probably have not seen what has appeared in our columns in favor of alfalfa. A couple of years ago it was extolled by quite a number (among them the writer) as the richest and finest honey in the world, and to this day I have not tasted the equal of it, although the ordinary northern clover approaches it very closely. Next, according to my notion, would come sweet clover, basswood, mountain sage, and thistle. Among southern honeys, palmetto, mangrove, and Texas horsemint stand high.—ED.]

END-SPACING OF FRAMES.

Your sketches of end-spacing devices are timely. End-spacing, to a large degree, does away with one of the principal objections to Hoffman frames. I have found that propolizing ends of frames makes them harder to move than the little they may stick on end-bars. I am afraid, though, that the staples will cause some annoyance to bee-keepers who, being unaccustomed to them, and being used to full-length top-bars, will, in replacing frames, get the end in line with hive, and bring down the frame with a jar on the tin rabbet. Why not bend wires like enclosed cut? You see the lower end is left rough to go a natural distance into the end-bar, using the templet as guide to driving, as suggested in GLEANINGS.

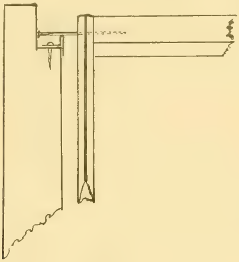


B. F. ONDERDONK.

Mountain View, N. J.

[This same idea was submitted to us, I think by F. Boomhower, of Gallupville, N. Y.; and our Mr. Calvert, before his samples came to hand, had bent some wire nails and attached them to the frames. But the more we considered it, the more we became convinced that the staple, which we have since adopted, is the better. An objection to the bent nails above shown is the difficulty of driving them into position. I can not explain it; but one will discover it when he comes to drive very many of them. Moreover, the lower projection can do very little more than prick into the wood; and this end would not be as stable for that reason as it ought to be. But the most serious objection is, the moment the frame is raised a little there is too much end play. We tried frames stapled and frames as above, and we very soon discovered that the stapled frames would hold their position much better. For instance, in hauling over rough roads, the bent-nail spaced frame is liable to hop out of position, and then the wide ends of the Hoffman frames interlock. The stapled frames can be jarred up a quarter of an inch from the rabbet, and still be end-spaced correctly. Here is another idea:]

In reading over your description of the Hoffman frame for 1897, the idea struck me, "Why



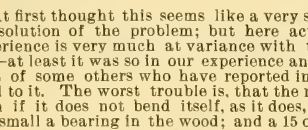
not do away with the wooden ends altogether, and replace them by nails thus?"

Knoxville, Tenn. ADRIAN GETAZ.

[At first thought this seems like a very simple solution of the problem; but here actual experience is very much at variance with theory—at least it was so in our experience and in that of some others who have reported in regard to it. The worst trouble is, that the nail, even if it does not bend itself, as it does, has too small a bearing in the wood; and a 15 or 20 lb. frame in time causes the top-bars to be of uneven height.—ED.]

A WHEELBARROW FOR CARRYING EXTRACTING-FRAMES.

Inclosed find a drawing of the wheelbarrow I am going to use the coming season in the apiary. It is all made of pine lumber, and is very light, using 1½-inch band-saw for tire, and 1¼-inch spring-steel for the springs, which are 30 inches long, and fasten on to the bottom of the box with two ¼-inch bolts in each spring, as shown. The wheel is 17 inches in diameter, with 1½-in. rim and 14-in. hub. The box is 44 in. long, 12½ in. deep, and 18 in. wide, outside measure; handles 32 in. long, projecting 16 inches, and screwed on the sides of the box; legs 11 inches, projecting below the box, making the box stand level when not in use. The box can be made to suit the length of frame used. I hang my frames in crosswise, because I have them all wired. If one wants, there can be a rabbeted piece put in crosswise, and they can be hung in lengthwise. If not wired, that would be better. I can carry 27 frames in this box; and as I use 9 frames in my hive I can take the combs from 3 uppers at a time. It seems to me that this would suit bee-keepers much better than the ordinary wheelbarrow; and it cost me only $1.75, and I did the work, and have it all painted and ready for use.



Last year we had no honey to speak of in Southern California, but hope to get a good crop this season, as we have had an abundance of rain—about 16 in. in all—and every thing is looking very promising, and my bees are in fine condition. We are expecting to get a good flow of orange honey, if the weather is favorable the latter part of this month, before moving our bees to the hills. M. H. DUNN.

Fullerton, Cal., March 8.

[Your wheelbarrow idea will do very nicely. The only objection is that it places a pretty heavy load on the man. Some years ago we illustrated a comb-carrying cart used by Mr. Osburn, then of Cuba, constructed somewhat on the same plan, only that it had two cart-wheels, and an axletree, a little forward of the center of the cart. This would place almost the entire load on the wheels, and of course be much easier for the man. But your wheelbarrow would have the advantage that it can be run in a narrow path, and would be a little more easy on the *load* if not on the man.—ED.]

THE ARTESIAN WELLS OF SOUTH DAKOTA.

I think A. I. might have been satisfied with seeing artesian wells that threw out water 100 to 150 ft. high at the rate of 600 to 1000 gallons per minute; also one at Aberdeen, that has not been properly cased, that is washing out the town so that several houses have had to be moved to save them from being undermined.

A FISH-STORY; CATCHING $1000 WORTH OF FISH A DAY FOR 16 CONSECUTIVE DAYS.

At The Dalles, Oregon, are immense salmon-canneries where they catch fish in large wheels costing $500 each. These are turned by the water, and elevate the salmon above water, into a large box. I was told that one man owning 10 wheels that cost $5000 had caught and sold $16,000 worth to the cannery in 16 days.

At that place was my first sight of an immense lumber and wood flume, 20 miles long, that brought large quantities of wood and lumber from the mountains. On our way to Vancouver by steamer are many fine scenes. At one place is a waterfall of 850 feet.

HARNESSING UP NATURE.

At Boisé City, Idaho, they are "harnessing up nature," as Uncle Amos advises, by warming the business houses and depot with hot water out of deep wells. It seems the deeper the well, the hotter the water.

Well, I expected rain in Oregon, and we got it; but when I got to California I expected honey but failed. I stopped in hotels in Marysville, Sacramento, Oakland, San Francisco, San José, Santa Margarita, Los Olivos, and San Luis Obispo, on stage route, and Los Angeles and Santa Monica and at several private houses, and at no place was honey on the table. I saw several apiaries on the stage route over the mountains between Los Olivos and Santa Barbara. I think it is time the bee-men created a home market for their honey.

If you ever wheel this way, call on me. I am not far from Mr. Cole, the garden plow man. Mr. Porter, the bee-escape man, lives at Lewistown. M. W. MURPHEY.

Cuba, Ill., Dec. 8.

RETAILERS MUSSING UP HONEY.

Woodchopper's complaint in April 1 GLEANINGS, concerning retailers mussing honey in handling, etc., and frequent complaints of others in the same strain, caused me to think that perhaps my way of getting around that unpleasantness might be generally appreciated by honey-men, as I already know it is appreciated by a number of grocers I supply with honey.

It is merely a small cupboard, about 20 inches square, if you use the 4¼ square, and 22 inches high, made of fancy pine, oiled and polished, with a 14x16-inch glass in front, thus showing the faces of 16 sections. I make it with a shelf in the middle; place a paper on the bottom and shelf, and set the sections on narrow strips ⅛ inch thick, which prevents all mussing from leakage from any cause. I extend the paper on the shelf down just below the top of the first row of sections underneath, so that nothing but honey meets the eye of the purchaser, and they —well, they just look, admire, and *buy*, but never handle and muss, as the door opens behind the counter.

Two grocers told me that it more than doubled their sales the first year, and my order-books prove it. It makes honey as clean to handle as canned goods, which is a great consideration with dealers. W. W. CASE.

Baptisttown, Pa.

"NON-SWARMERS" SWARMING.

To-day at 11 o'clock I experienced the novelty of uniting two swarms of different races of bees. Swarm No. 1 was headed by a Carniolan queen from Miss Amanda Atchley, of Beeville, Texas. It settled on a limb nearly opposite a hive of H. Alley's celebrated non-swarming Adel bees. This latter hive showed a disposition to swarm some two weeks ago, when I took the precaution to clip the non-swarmer's wing, and added another story, making a three-story hive. Just as I finished sawing the limb, and was lowering it to a new hive at the foot of the tree, the non-swarming Adels issued; but their queen failed to follow, and they began settling down with the Carniolans, seeing which I promptly added another story with full sheets of foundation, and in less than ten minutes every bee was inside.

I moved the hive to a new location; and upon examination this evening I find the beautiful grays and the golden Adels (making an elegant variegation) busily engaged in fitting up their new home. Both stories showed them intermixed, and every indication of being thoroughly united. Will they stick?

Franklin, Tex. JNO. C. MITCHELL.

[The fact that the two swarms united is nothing unusual; but the fact that the "non-swarmers" did come out is rather of a joke on friend Alley. However, there are exceptions to all rules, and in the case of bees there are a good many, especially when it relates to swarming.—ED.]

THE ADVANTAGE OF DEEP ENTRANCES IN GETTING ALL THE SECTIONS FILLED.

In response to your request as to whether the raising of the brood-chamber from the bottom-board causes a more even distribution of the surplus in the sections above, I will say that I think it does. I use a ¾-inch frame between brood-chamber and bottom-strips on bottom-board, making an inch clear of bottom-board for wintering. The dead bees then drop down out of the way, and do not mold the combs. Last spring I left 10 hives with these deep entrances, as they were large colonies, but I never thought it was the cause of every section in the super being well filled, as the case proved to be. Flow was only moderate.

J. C. WALLENMEYER.

Evansville, Ind., Jan. 27.

DRAWN FOUNDATION AND ITS ENEMIES.

It is really amusing to see so many alarmists brought in line by a little editorial fire, to fight an imaginary foe in the shape of drawn foundation. With "Progression" inscribed on their banner they would deal the death-blow to deep cell walls, the acme of genius and skill, condemned and untried. But all opinions found prior to a fair test of the comb is no proof of its failure. Bring it to the front, regardless of the unkind thrusts at your reputation; for it is said, "Woe unto him of whom all men speak well." A. B. BAIRD.

Belle Vernon, Pa.

BLACKS BETTER FOR WINTERING THAN ITALIANS.

My black or common bees have come out uncommonly strong in numbers; but half my Italians have died in the hives with plenty of honey. I set my hives in outside cases large enough so that I packed three inches of leaves around the hives and on top. Still the bees are dead. I like black bees best.

Hinsdale, Mass. C. G. ASCHA.

By ER ROOT

Editorial

SPECIAL attention is called to the articles by P. H. Elwood and Justice, elsewhere in this issue.

THE flood of orders for supplies from all quarters seems to indicate that the prospects for the season are unusually good.

FOR several issues back we have been giving eight extra pages to make room for the extra advertising, and it looks as if we would have to continue giving this extra space for a while.

THE copy for the Fred Anderson serial came to hand just too late to get in this issue; we regret, therefore, that we have to leave it out this time. Copy is in hand for the rest of the story, and there will be no skip from this time on. It is drawing to a close, and the "mystery of Crystal Mountain" will soon be made clear.

THERE is some talk of a change of name for the United States Bee-keepers' Union, to something else, to avoid confusion with the other organization, the National Bee-keepers' Union. If there are to be two Unions, then a change should be made. Personally I like the name United States Bee-keepers' Association. At the next annual meeting in Buffalo this thing will be discussed.

WE put into winter quarters last fall 241 colonies, most of them in fair condition; but there were a few weak ones. We find at this date, April 24, 230 colonies; 5 of the 11 seem to have died during winter from the extreme cold, the other 6 having spring-dwindled during the last two or three weeks. Some of the weather of late has been unfavorable. There have been a good many raw days, some of the nights going down to freezing and below. The consequence is, we have had a little touch of spring dwindling.

"SUCCESSFUL BEE-KEEPING" is the title of a booklet on bees, by W. Z. Hutchinson, published by the W. T. Falconer Mfg. Co., Jamestown, N. Y. It takes up the subject of learning the business, selecting the locality, the kind of bees to get, transferring bees, introducing queens, producing comb honey, etc. Several years ago we realized the necessity of getting out a booklet on the management of bees, because we noticed that there were many who, even if they could afford to buy the more complete text-books, would not take the time to read them, and we therefore put this matter, not in a booklet, but in extra pages of our catalog. It is not possible to estimate the amount of letter-writing that this has saved. Mr. A will write in and ask how to transfer bees. To refer him to the text-books at the price of $1.00 or $1.25 is apt to have a wrong effect; but giving him the information needed, boiled down in a nutshell, at no cost to him, very often gives him an appetite for more knowledge, and this means an order for a text-book. The fact that W. Z. Hutchinson's name appears as author of the booklet mentioned is a guarantee that the instruction is boiled down and orthodox. We do not know whether any price is charged or not. Inquiry can be made of the publishers, as above.

HOW TO MAKE END-SPACING FRAMES OUT OF OLD-STYLE HOFFMAN FRAMES.

NEXT week we shall cut off the top-bars and put on the end-spacing staples to all the frames in use in our apiary. The projections of the top-bar are ¾ inch, and we shall therefore have to cut off about ¼ of an inch from each end. To do this most expeditiously we have constructed a tray without bottom, 4 inches deep. The length of this tray, *inside* dimension, is 1/16 inch longer than the outside dimensions of the Langstroth-Hoffman frame. The width should be the same as that of the hive used, and in our case that of an eight-frame hive. This frame is mounted on legs of ⅞-inch stuff, 2 feet long, the legs being braced. We now have a topless table two feet high. The length of the projection of the top-bar to end-spacing Hoffman frames is ½ inch; therefore the thickness of the ends of the tray should be a scant ½ inch.

We are now ready to cut off the top bars of all the old-style Hoffman frames in the apiary. We set the topless table near the hive; shake the bees off the frames in front of the entrance, and slip them one by one into the tray or topless table. If the table has been made right, the frames will just slip between the ends of the tray, and the top-bar projections will stick over ¼ inch. A saw now cuts them off just even with the end of the tray at both ends. After the staples are put on according to the directions previously given on page 95, the frames are ready to be put back into the hive. The other hives are then treated in a like manner. Usually it will be found advantageous to have an assistant, because two can work to better advantage.

MORE EXPERIMENTS WITH DRAWN FOUNDATION; HOW BEES MAKE COMB.

ACCORDING as the weather has permitted during this spring, we have been putting into the hives at different times samples of the drawn foundation, together with a sample of ordinary foundation in the same comb, side by side. As it was cool weather, and no honey was coming in, the foundation of course in every case was either untouched or gnawed into, while the *drawn* (or deep-cell) article was as often accepted. A very noticeable fact is that when the new product is put into the hive, it is transparent. After the bees have had it for 24 hours the new transparent cell walls seem to assume the color of natural comb or appearance of ground glass. The bees began immediately, it seems, to thin down the walls to their natural thickness, and in doing so they seem to take off thin scales of wax, and add them on to the ring of wax at the top of the cells. While the new product is accepted at once, it seems to be all worked over with the exception of the base, which is flat, and apparently untouched, so far as thickness is concerned.

From experiments Mr. Weed has conducted, it would appear, although we may be mistaken, that the bees do not generally, at least, straddle the cells of common foundation with their mandibles, and continue this process of pinching until the cell is elongated, but, on the contrary, take off little minute films of wax at the point where it is not needed, and add it to the thickened ring at the top of the cell. It would appear that, in natural-comb building, the comb itself is made up of small particles pressed and kneaded together into a perfect comb; so, then, when we give them the new drawn foundation they reduce the thickness of the wall by taking off thin particles and adding them to the top of the cells. This process of scooping off the minute film, and adding it to another point, gives the cell walls a sort of scraped or scooped ground-glass appearance to the naked eye, taking away that delicate transparency that is so noticeably characteristic of the new Weed drawn foundation. If the bees build their comb in this way, as we have reason to believe they do, then we can account for the flaky condition that Mr. Hutchinson describes; and it is possible that by "flaky" he meant — well, easily crushable comb, not brittle, as the term would seem to indicate. If this is a desirable characteristic it will be just as marked in the new drawn foundation as in the ordinary product.

In the experiments Mr. Weed has been conducting, it seems to be apparent that bees take the new drawn foundation quicker when the cell walls are somewhat defective or broken than when they are perfect, because they seem to regard the broken article as their own product that has been damaged, and must, of course, be repaired at once.

We are now sending out hundreds of samples of the new product; and I hope others will experiment. If the new thing can not stand the examination of impartial critics then it is not fit to stand. I say "impartial," because I am fully aware of the fact that there are those who show by their very writings that they have no disposition to give the new article a fair test. Fair criticism we are prepared to meet, but don't care to waste time on anything else.

APIS DORSATA; A SCHEME TO GET THESE BEES IMPORTED INTO AMERICA AT A SLIGHT COST.

We have just had a very pleasant visit from Mr. W. E Rambo, at present located at Hiram, O., but who has been until recently a missionary at Damoh, India. He is now recuperating in this country, but expects to go back to his mission field this fall to take charge of a boys' orphanage and industrial school. While here he is posting himself up on various industries, with the view of introducing them into his new work among the boys. He has been a subscriber to GLEANINGS for a year or so, and in the mean time has been reading and studying so that he may be competent to teach bee-keeping.

When I learned that he was a missionary from India, a subscriber to GLEANINGS, and an enthusiastic bee-keeper, the suggestion of Mr. W. A. Stilson, of the *Nebraska Bee-keeper*, flashed through my mind. You will remember how he showed up the folly of sending a man over to India, at an enormous expense on the part of the general government, to secure *Apis dorsata*. He urged that, *if* these bees were really desirable, and could be domesticated, they should be obtained through missionaries already in the field, at a very slight cost.

After talking with Mr. Rambo in regard to the famine in India, the general climate, the characteristics of the people, of tigers (especially the man eating kind), we began to discuss the feasibility of importing *Apis dorsata* and *Apis Indica* from that country to this. He described to me a small bee that seemed to be very common in his vicinity, and which I feel very sure is *Apis Indica*. They build a single comb under the limb of a tree, and their nests are very common. He has also seen what he believes to have been the *Apis dorsata*, and the nests themselves.

The upshot of the whole matter was that we are to equip him with hives, material, etc., necessary to test *Apis dorsata* right in its own climate—in other words, determine whether they can be domesticated *at home*. He was, however, of the opinion that neither race I have mentioned could be confined to a hive; but if they could he was sure that he and his native helpers, who are quite familiar with the bees, could do so just as well as and far more cheaply than Uncle Sam by sending a man over.

When Mr. Rambo leaves this country in September we expect, of course, to send along with the general shipment some mailing-cages as well as some small boxes for express shipment. Arrangements can be made to have the bees shipped to some bee-keeper in England, where they can have a cleansing flight, and, after a few days, be forwarded to the United States.

There, now, don't you see we can get dorsata, if it can be kept in hives at home, at an infini-

tesimal part of the cost that it takes to send some one after them ?

If they can not be domesticated in India they certainly could not be in this country; so we would determine this point first before we went to further expense. But even if they could not be domesticated they might be of advantage in the way of the fertilization of certain flora by letting them run wild in California and the South.

Now, I suggest that bee-keepers, instead of trying to encourage a scheme that would cost the general government thousands of dollars, wait to see what the A. I. Root Co. can do through Mr. Rambo. This would cost the general bee-keeping world practically nothing.

We expect to have another interview with Mr. Rambo before he leaves for his mission field, and all details will be further discussed.

QUEENS EXCLUDED FROM THE MAILS.

A GENTLEMAN conversant with mail matters informed E. T. Abbott, ex-president of the N. A. B. K. A., that the government was "talking of excluding queens from the mails." This would indeed be a calamity to the bee-keepers of the United States. The sending of queens by mail has grown to be a large and important industry. Anywhere from five to ten thousand dollars' worth of queens are sold in a single season in this county alone. Great good results in the interchange of stock, and without this interchange there would very soon be inbreeding.

Our older readers will remember that there was a time when queens were debarred from the mails, simply because one ignoramus of a bee-keeper attempted to send a queen and some bees in a flimsy *paper box*. Of course, the box broke and let the angry bees out into one of the important offices of the service. The result was that Uncle Sam shut down on sending any more queens through the mails, and we all had to send queens by express at a charge of from 15 cts. to $1.00. These charges, for the time being, killed the industry. I wonder if another ignoramus has tried sending bees or queens in another paper box, or doing something else equally foolish. It would be interesting to know why the government should be talking at this time about "excluding queens from the mails." Bee-keepers have enjoyed the privilege for the last 15 years, and we were not aware that there had been any trouble since the paper-box incident.

It was Prof. A. J. Cook who made a special trip to Washington to get the queens readmitted to the mails, and he was successful; but the condition was made that there should be two sheets of wire cloth over the opening to the cage. But in later years bee-keepers have, instead of two sheets, used one, and a thin strip of board over the wire. This conforms to the *spirit* of the law—in fact, is better than the two pieces of wire cloth.

WORK FOR THE NEW UNION.

The United States Bee-keepers' Union, recently organized, has been advised of this matter; and as a member of the Advisory Board I feel sure it will take energetic and prompt action. But in order to accomplish much in this or any other direction there must be more means and more funds at the disposal of the General Manager, Mr. Secor. Under the circumstances, the new organization has made a good start; but it needs something more than a good beginning to do the work that it has laid out for itself. Bee keepers everywhere who are interested in seeing that queens are not shut out from the mails, in fighting dishonest commission men, in coping with the adulteration evil—in fact, in any and every thing that needs intelligent and organized effort, should send in their names, accompanied by $1.00, at once to the General Manager, Eugene Secor, Forest City, Ia., or to the Secretary, Dr. A. B. Mason, Station B, Toledo, O. If more convenient, the money may be sent to Mr. G. W. York, 118 Michigan St., Chicago, or to this office, and we will see that the money is duly forwarded, and the persons enrolled as members. Remember, the amount is $1.00. This entitles you to all the privileges of the organization, and allows you to have a voice in certain matters at the annual meeting, whether present or not.

HOW HISTORY REPEATS ITSELF.

THE little opposition that has been stirred up against the new drawn foundation is not so unlike the opposition that was urged against railroads in China, where, after using one a while, they tore the rails up, as the cars "disturbed" the repose of their ancestors. (The new drawn foundation seems to have disturbed the "repose" of a few bee-keepers). When railroads were first suggested in this country, so great a man as Daniel Webster "proved" in Congress that a railroad train could never go up grade, could not be stopped within twenty miles on a level, and never on a down grade; that it was not safe, and yet he lived to see them stopped in their own length at any point. The English bridgebuilder, who built the great Victoria bridge over the St. Lawrence River, declared that the proposed suspension bridge at Niagara would never hold its own weight up, that it was not safe, and "proved" it—by riding over it in a car while on his way to dedicate his own bridge further on. In these latter days a few have tried to make out that the new product is going to ruin the bee-keeping industry, and, according to their opinion, they have "proved" it too. As prophets they can look backward better than forward. But railroads and suspension bridges have come to stay, and so has the new drawn foundation.

NOTES OF TRAVEL.

BY A. I. ROOT.

I think I told you the population of Jerome was about 2000. Of this number about 600 are at work in the mines. Wages average about $3.75 a day. Now figure this up for seven days in a week and you will see how much hard cash is paid to workmen in that one mine every week; and I suppose it is true that something like $15,000 a week is what the company pays its men. But, hold on, friends. They not only work week days and Sundays, but they work day and night. There is no stopping at all of the ponderous machinery. If I am correct, there are extra engines and dynamos and other machines, so that one can be hitched on while the other is being overhauled and repaired. When the machines wear out they get new ones; and when the *men* wear out they get new ones. You may think the wages pretty high; but please remember that board, even by the week, is about a dollar a day; and if you rent a decent house to live in, your rent is a dollar a day, and other things in proportion. Wood is $7.00 a cord. They do not draw it in wagons, as we do, but it is carried on the backs of patient and faithful burros. These burros need no graded road, such as a wagon must have. They toil patiently up and down a footpath or trail sometimes almost too rough and narrow for one to go on foot. I was greatly interested in the burros. The man who furnishes wood comes into town with perhaps half a dozen. He talks to them as he would talk to a well-trained dog, and they are wonderfully obedient to his voice. Their load is so great that it is sometimes a difficult matter for them to keep their balance. A sort of rack made of wood and ropes holds the load of wood—not so much on their backs, but each side of their backs being about equally balanced. They seem nervously afraid of running against anybody or against each other; in fact, it makes me think of a rider on a wheel carrying a considerable burden. If you look at the feet of the burro and the size of his slender legs, it seems almost incredible that he can carry such loads; and, in fact, they often do jostle over and go rolling down the mountain. In that case it is no great financial loss if the burro is killed, for they cost only about five or ten dollars. When they come into town each seems very anxious to have his load removed. The driver is always careful to take the wood first from one side and then the other, so as not to throw the little animal out of balance. When he is relieved of his burden he seems very thankful; and while his master is unloading his comrades, he takes the opportunity of looking about to see what he can pick up in the way of provender. I asked one of the clerks at a grocery what burros fed on. He replied:

"Oh! any sort of rubbish they can pick up. In fact, they eat almost any thing. Some folks say the burros eat tin cans when they can not do any better. This I can not prove, but I do know they eat all sorts of waste paper; and when a burro can get hold of the outside casing of smoked hams then he has a picnic indeed. Why! they are regular scavengers. They pick up almost every thing that is thrown out of the front door or the back door, all over town."*

I had quite a curiosity to know more about the source of the waterworks that supplied the town. In the afternoon, when my good friend Mr. Jordan was obliged to resume his work, I secured the services of Master Harold Jordan. He is just about the age of Huber, and, like Huber, is greatly interested in any thing about electricity. I told him some things he wanted to know, and he told me a good deal that *I* wanted to know. Among other things, he said if I did not mind the walk he would go with me to the spring that feeds the flume that pours its contents into the great water-tank, 500 feet above the town. First we took a burro-path up over the mountains. On the way we passed under an apparatus that strongly attracted my attention. It is what they call a "bucket-line." It was put up ten years ago, before the railroad was built. This bucket-line is an arrangement of a stationary cable and a movable cable elevated on posts or poles, so as to run a bucket along the wire for a distance of *nine miles*. I should say, rather, a *string* of buckets, for the buckets are perhaps 100 feet apart. On one side they go to the town of Jerome loaded, and on the other side they go back empty. Of course, a steam engine works the machinery. Harold told me it took the buckets from morning till night to make the trip; for one of the boys wrote something on a piece of paper and put it into a bucket in the morning, and it did not reach Jerome until night. This bucket-line brought in fuel, limestone from a distant quarry, and supplies of other kinds that might be needed. Of course, such an apparatus could run from cliff to cliff, over and through tree-tops, and across yawning chasms where even a burro could not make his way.

Now we went up hill and down hill in going to that spring; but when we found it, it was off in a little valley or canyon where a little stream came down between the hills. Said I:

"Why, Harold, this spring can not be higher up than that great tank away up above where you live?"

"Why, it looks so, Mr. Root; but if it were not higher, how in the world would the water run? and it does run all the way, and seems to be down hill too, for we boys have followed it away around the mountain. It is a good way farther than the way we came, but it is surely *down hill* all the way."

Here, again was another illustration of that queer feature of these mountainous regions.

The United Verde & Pacific Railroad comes into Jerome away up above the town. If you want to see the railroad station you have to look away up. This railway is proud of the distinction of being the crookedest road on the face of the earth—at least, folks say so. Instead of following watercourses through the valleys it runs a good deal of the way along the crests of the mountains; and of course it has to do a great deal of twisting and turning to keep any sort of level. I suppose one object in bringing it in at such an elevation above the highest point of the smeltingworks is that the freight may be all dropped down an incline to such a point in the mines as it may be most needed. In loading the cars with the copper and gold, these metal ingots are simply run up on a powerful elevator.

By the way, there can not anybody steal gold from this mine—not even the workmen. Every dollar's worth of gold is securely locked up in, say, a hundred dollars' worth of copper, and it would take an expert burglar, I tell you, to break the lock that holds the gold combined with the copper. So these great bricks are loaded on to freight-cars, and run clear across the United States, with as much safety as if they were blocks of paving-stones, and yet they may contain millions of gold. In fact, it has been estimated that the Jerome mine has produced as high as eight millions of dollars' worth of gold in a single year.

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*Mrs. Jordan told me she saw a burro one day that must have got strayed away from his comrades. He came into town alone, and marched up to a woodpile and looked around in a pleading sort of way to have somebody unload him; and then he went to another woodpile, and so on all around the neighborhood. Nobody could unload him, because nobody had a right to do so, and so the poor fellow was in trouble indeed.

ELECTRICITY VERSUS MULE POWER IN MINING.

The Jerome mines are said to be the first in the world to pull out their ores by substituting an electric motor in place of the time-honored mule. With ordinary mining, a mule or other animal pulls a single car; but the electric motor will pull a train of a dozen cars or more, all laden with ore. It was my good fortune to stand at the mouth of one of the tunnels when the motor came out with its string of ore. Said motor is about the size and shape of a good-sized cooking-stove. Imagine a large sized cooking-stove mounted on wheels, with the engineer sitting on the stove-hearth, and you have it. He sits on the stove hearth, or a low down seat, because his head would be hitting the roof of the mine were it otherwise. Then he does his switching and backing up and going ahead, etc., by simply "pressing" the proper "button." I was kindly invited to take a seat on the motor, and ride around the yard in the open air while he pushed certain cars here and there as the workmen wanted them for convenience in building up the piles of wood and ore for roasting, as I have described.

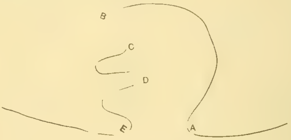
I was very anxious to accompany the motor away back under ground into the mountain; but my companion had told me that nobody was allowed to view the mineral wealth the company had discovered in their underground tunneling. Not even the bosses and proprietors of the mine were permitted to view the company's wealth unless they were specially employed in the mine, and the workmen were not communicative, for reasons best known to themselves.

Now, lest some of you may think it worth your while to take a trip to the Jerome gold-mines to get a job, let me tell you there are men standing around all the while, waiting for a chance to work. Mr. Jordan told me of a man who walked over that crooked railway all the way from Prescott to Jerome, then waited for a chance to get a job, without any thing to eat until some time in the middle of the night, when a man was found lacking. Then he worked several hours without any sleep or food, so as to secure a place. The man who is not on hand to take his place when the whistle blows loses his place, and somebody else steps into his shoes. If he makes an arrangement to be absent, or gives some good reason why he can not be at his post, I presume he might hold his job; but the man who is away, with no explanation, is out. I wonder what the friends in our establishment would say if we should substitute a similar rule.

A competent physician is employed by the year, and a small per cent of each man's wages is held back as a fund to pay the doctor's bill; so that the man who is sick does not have to stand the expense of medical care. I am not sure but this fund, or a similar one, supports the man's family while he is sick, or in case of accident and loss of life. Each man as he is employed is obliged to submit to this small assessment as required.

I was obliged to take my departure from Jerome before daylight. This I greatly regretted, because I missed a view of the grand scenery. There was just a glimpse of dawn as we started; and after we were out four or five miles I could see tolerably. The San Francisco Mountains loomed up in glorious majesty at almost every point around Jerome. In fact, we had them constantly in view when we were making that trip between Camp Verde and Jerome. The two peaks are just a little north of Flagstaff, right on the road to that wonderful Grand Canyon. I do not remember now their height; but it is great enough so they are constantly white with snow. A little further west, and the celebrated peak "Bill Williams" looms proudly up in the distance.

Before leaving the locality I want to give you a little bit of illustration in regard to that crooked railroad. In railroading all over the United States we often see a "horseshoe" feature as it is called. In order to avoid the expense of a bridge across a valley, railroad men often run around, as it were, so that the track, after making quite a horseshoe loop, comes around near to the place of starting. Now, the Jerome railroad not only makes some wonderful horseshoes, but it has a horseshoe within a horseshoe. In the figure below I have not tried to draw a man's face.



First we have the large curve; then, in order to get in and out around the mountain, we have the short curves back and forth, so the passenger, if he keeps his eyes open, and fixes them on some point on the mountain, say at A, he will be able to see this point again at B, then after a while at C, then again at D, and finally at E, where he will be only a few rods from where he left A perhaps an hour before, only a little lower down, and this sort of thing is being enacted again and again on that United Verde Railway.

I was exceedingly fortunate in having for my traveling companion my good friend F. E. Jordan, as he had business in Prescott. He told me there is one place just out of Jerome where the railroad has 14 miles of track in order to accomplish a distance of only 5½ miles—nearly three miles of crookedness to get ahead one straight mile. The railroad is about 2500 feet, or nearly half a mile, higher than the Verde River, which seems like a slender thread of silver all along the valley.

About 40 tons of copper are sent off by this crooked railway every day in the year. At the moderate price of 10 cts. per lb., the copper alone would be worth $8000 a day; and there is a sort of understanding among the workmen that the *gold* in these ingots is worth about *twice* as much as the copper.

OUR HOMES.

The cares of this world, and the deceitfulness of riches, and the lusts of other things entering in, choke the word, and it becometh unfruitful.—MARK 4:19.

The principal thought I have in mind in the above words, spoken by our Savior, is that part about the deceitfulness of riches. Probably nine-tenths of those whose eyes rest upon this printed page firmly believe that greater riches would make them happier; and I fear that a good many, at least, think that worldly prosperity would make them better Christians. In my recent travels in Arizona I met with people almost continually who are more or less interested in gold-mining. It is the absorbing topic of the day. Several times I questioned bee-keepers, and I found to my surprise that almost every one of them had at different times had at least a taste of the gold-mining mania. Now, there are devoted Christians in Arizona; in fact, there are some of the most beautiful self-sacrificing Christian characters away out on the deserts that I ever met in my life. Some of them were interested in gold-mining. Yes, I know some good and faithful souls who have prayed that God would bless their efforts in locating a paying mine, or in so managing a mine already started that the expense would not exceed the value of the product. You may perhaps be aware that I was then, and am now, rather prejudiced against the gold-mining business. I was several times assured that it might be, and in fact should be, just as honorable as growing crops, selling goods, or any thing else. I replied that it had bad associations connected with it. Christian people usually object to card-playing because cards are the gambler's tools, and most people would prefer to have them out of sight if they thought the minister was likely to come. Well, in a like manner it seems to me that those who are affected with the craze for mining gold would hesitate a little to talk about it among Christian people. Now, please do not misunderstand me. Most of the men engaged in the mining business are a hard-hearted and ungodly class. Let me illustrate:

One evening, when we were discussing the matter, I said something like this:

"Dear friends, when a man makes a lucky hit, and finds a good-sized nugget of gold, does he not usually thank God for this gift that has for ages been stored away for him, hidden in the earth, as it were?"

My friends looked at one another and smiled; and they finally admitted, each and all, that they never heard of a case of thanking God because one had made a lucky find.

"But when the proprietors of these mines 'strike it rich,' as they say, do they not, at least *sometimes*, give thanks to God that they are enabled to set a large party of men at work, paying them promptly every Saturday night, putting in nice and expensive machinery, etc.?"

Again my friends shook their heads, and smiled. Nobody had ever heard of any thing of the sort.* In the first place, all the successful mines, so far as I know or could learn about, are worked not only nights, but Sundays also. Several times this course was defended, and some of the friends assured me that, if I were right in the business, I would do as the rest do.

"Why, look here, Mr. Root. Where they have tried paying their men every Saturday night, and letting them have their Sundays without work, they all get on a big drunk. Sometimes there is a big fight along with it, and so the men entirely unfit themselves for business on Monday morning. The miners are mostly of a class that can be kept from drinking and fighting only by keeping them busy. If they get drunk, and can not be on hand when the whistle blows, they lose their jobs; and this is the only thing that will keep them sober."

"But," said I, "have not the owners of the mines tried Sunday-schools and churches?"

"Not so far as we know. They have excellent reading-rooms. You yourself have seen some of them. They have fine schools and expensive teachers; but the proprietors of the mines do not seem to recognize the importance or need of *churches*."*

The miners are not, as a rule, paid every Saturday night, as we pay our helpers. I believe they are paid about once a month or at longer periods. One reason why they make their paydays as far apart as possible is because, when the men get their money, the bosses are absolutely *obliged* to give them a day or two to get over the effects of payday. Well, it is not only gamblers who keep track of these paydays, and are promptly on hand around the mines at such times, but I am told that lost women come from distant cities, even as far off as Los Angeles, that they may, while the poor miners are under the influence of drink, contest for their share of the spoils instead of letting the gamblers get all of it. Fights are common, and but few arrests are made. If a man is on hand when his time comes to go to work, that is about all that is required of him. At one place where I visited, a drunken man fell into an abandoned shaft. Some of the men were talking about it, and when I asked if any attempt had been made to recover his body, the reply came:

"To be sure, not. What do *we* want of his *body?* He was given to drink so badly that he was no good before, and we can not bury him any cheaper than where he is now. Why should we bother about him?"

If I am correct, the matter was dropped then and there. There was not a coroner within forty miles or more, and nobody thought it worth while to "bother" about it. Now to our text:

I told you I knew good devoted Christian men who were praying that God would bless their efforts to locate a profitable gold-mine. If God should hear that prayer, would it increase the faith of the one who prays? and would he be likely to make a good use of the money that comes? I am afraid, dear friends, that past experience shows that *money* does not make better Christians. I mentioned not long ago that our good pastor said he had never known a man brought to Christ or nearer Christ by prosperity, but many and many a one by adversity and affliction.

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*One of the men said he had heard that the owner of one of the richest mines in Arizona was in the habit of spending *a million of dollars a year* at Monte Carlo, that celebrated camping-ground where all the great gamblers of the world are wont to meet; and our proof-reader informs me that a writer at that place says the number of suicides there last year was 800, which is about a fair yearly average.

*On page 130, Feb. 15, I spoke of the Rev. Mr. Healy, and his appointments for preaching in various places. One of these places is in Jerome. There is a Baptist church there, as I have explained, but it is at present without a minister. Mr Healy gets around once in two weeks, if I am correct, and preaches in the evening. I spoke of the fact that his people find it difficult to raise even a small portion of his salary. Well, if I mistake not he said the church at Jerome in the vicinity of that great mine, with its untold millions, finds more difficulty in raising the small sum of money they pay him than even the country places away out in the arid plains. Now, may be I have not got the facts in the case exactly right; but I think I am not far out of the way. And this little incident, it seems to me, points out to us all a tremendous moral. It is not because of lack of money that our missionaries are going without their pay, and our teachers in foreign lands are being called home by the scores. It certainly is not because of the *hard times* so much as it is because of the *hardness of people's hearts.* There is money enough to build railroads clear around

Toward twenty years ago I was quite well acquainted with a bee-keeper who seemed to be a very devoted man. He had some trouble with another man in regard to the sale of some bees. The matter was left to me. Both parties were professing Christians, and we soon had the matter pleasantly adjusted. It was years afterward that I met my bee-keeping friend. It was at a convention in a large city. I was surprised that he did not seem very cordial, and only incidentally referred to our former acquaintance and the service I once did him. I did not exactly understand it. A mutual friend explained. Mr. —— had got out of the bee business, and gone into something else. He was prospered, and became quite well off. With the prosperity his Christianity slowly faded away, and he excused himself from attending an evening session of the convention by saying that he and a friend of his wanted to attend a place of questionable amusement. As he took his cigar out of his mouth and looked over toward me with a smile it brought a sad feeling to my heart. I said to myself, "Is it really possible that this is the man who wrote me those kind letters, and expressed in them such devotion to our Lord and Savior? and was it prosperity alone that has changed him from what he was then to what he is now?"

Dear friends, this is a sad thing to confess. Each and every one of us declares in our own heart that, if God would only try us, he would find that *we* are an exception. While I write I have in mind some plans of my own that have not turned out as I expected. I have been praying over them, and was *almost* rejoicing in the thought that God had answered my prayer. It turned out, however, otherwise, and I have been for several days feeling a good deal disappointed, and I asked myself the question, "Had God granted my prayer would it have brought me nearer to him?" I am afraid, to tell the truth, it would not. I know that prosperity—at least getting money easily—is not conducive to my best spiritual development. Some of you may think it a little strange that I, who have been greatly prospered, should write in this way. It is true, God has answered many of my prayers that might be construed in the line of worldly prosperity; but no prayer has been answered that did not require faithful and earnest hard work to bring about its fulfillment. I have tried to avoid any thing that might look like show or display in the way of riches; and could you visit our own humble home I am sure none of you would say that Mrs. Root and myself have any thing about us that exhibits more display of wealth than you meet among quite ordinary people. I am *afraid* of what the world calls riches; and I pray that God may keep me from its "deceit," and, in the language of our text, from "the lusts of other things entering in" to "choke the word." Just a word more about the gold-mining business:

I confess I do not really know why it should be so much in the hands of sharpers. I do believe a man might be a consistent Christian, and manage a gold-mine. Let me give you a glimpse, however, of one little transaction in a quiet rural neighborhood in Arizona:

A stranger came into a little town and cautiously approached the bank. He told the cashier that he had some gold that he wanted to leave with him for safe keeping. The cashier handled the chunk with some curiosity, and asked him how he came by it. He said he got it out of a mine of his own, something like 80 miles off among the mountains. The man seemed to be very simple and uneducated. The cashier showed the gold to a neighboring business man, and they both asked the man more about his "find" away out in the wilderness. Before many months had elapsed, the cashier of the bank and this business man had bought an interest in this mine, raking and scraping and borrowing all the means they could get hold of. The owner of the mine, in order to have every thing fair and honest, permitted them to take entire charge of the works and run them for a week. The output of clean gold was, if I remember, several hundred dollars per day, and the ore seemed to be getting richer and richer as the miners went further. As soon as this simple, uneducated countryman, who could *neither read nor write*, got possession of the notes and securities, the yield of the mine suddenly dropped to thirty or forty dollars a day instead of three hundred or four hundred dollars as before. In spite of any thing they could do, the new owners could not make it yield any more. An experienced expert was finally called in. He made a careful analysis of the ore, and reported that the ore never did and probably never would furnish gold enough to pay the workmen. An expensive lawsuit followed, which revealed the fact that the owner of the mine had "salted" it during the week its purchasers had it on trial. Of course, he was standing around to instruct the new owners how to manage the different apartments; and while doing this he had smuggled several hundred dollars' worth of gold into the amalgamating works each day. He invested something in doing this; but his notes and securities amounted to many thousands. Of course, this was a state-prison offense; and although the evidence seemed complete, the man in some way eluded justice. I believe the purchasers recovered a part of what they lost. In undertaking to dispose of the expensive machinery they had invested in they were swindled and cheated *again* until it seemed as if the very spirit of the prince of darkness himself had got a lodging-place in the heart of every may who bought or sold, or had any thing to do with the matter of mining and working gold.

As I have said before, I do not really know why this should be; but this is true: There is danger lurking about any spot where gold is handled in considerable quantities. The papers are continually warning people—especially people who live in the country—against keeping money in their homes. Some time ago a man got an idea that our banks and government were going to the dogs. He got all his possessions into gold, and then started to carry his gold home, so as to have it *safe*. He was warned repeatedly that he would be robbed, and perhaps murdered, if he undertook to carry out his plan. After he had passed through several escapes, and had come near losing his life, he carried his treasured coins back to the bank, and concluded that he did not want any more of that sort of experience.

There is a fragment of an old hymn that just now comes into my mind. It may seem to you, my readers, a sudden break in my talk, and a very abrupt way of cutting away from my subject; but yet I am going to give you a verse

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the world, and enough to build hotels (that cost a million or more); and these things may be all right in their places; but there is certainly not any need in this world of ours that there should be starving bodies, and (sadder *still*) that millions of people should be starving for the bread of life. In speaking of Mr. Healy I am reminded of a postal card that came to me some time ago. Here it is:

BRO. ROOT:—In your sermon on p. 130 you state that Bro. Healy is a "young Irishman. or at least he came from Ireland." This is a mistake; he was born in Illinois, of Irish parents; was converted under the M. E. Church South, in Mississippi. L. B. BELL.

Camp Verde, Arizona, Mar. 2.

right here. It has given comfort and joy and peace to many a poor soul—poor, perhaps, in this world's goods, but rich in treasures that neither perish nor pass away. Here it is:

Know, then, soul, thy full salvation;
  Rise over sin and grief and care;
Joy to find in every station
  Something still to do or bear.

One thing that has endeared this verse of this old hymn to my heart is that about rejoicing because that, no matter where we are nor what our station, whether rich or poor, we may every day find something to "bear." And if we bear it for Christ's sake we are rich indeed.

HIGH PRESSURE GARDENING

CLEARING OFF THE BEDS WHEN A CROP IS NEARLY MATURE.

There are a thousand things that need wisdom and experience in high-pressure gardening; and with a dozen boys to do the work, a smart man can be kept just as busy as he can be, directing the boys to work to the best advantage. No matter how good his boys are (we think we have some in Medina as good as there are anywhere), they want their work laid out and carefully planned. A good many times the boss wants somebody with rare wisdom to plan and direct *him* in turn. Just one illustration:

Our plant-beds are now all made up of very rich ground. The manure has cost so much money, to say nothing of bone dust, ashes, etc., that we can not afford to have a bed stand idle for even one day. Just as soon as one crop comes off, another must follow in its wake. We frequently gather onions, lettuce, etc., taking off, say, the space of three or four sashes each morning. Well, this ground should be raked and spaded over, and planted again right off within an hour after the crop is gathered. When some more stuff is gathered, commence where you left off, and break up ground again, and put in the crop. As a rule, our plants are raised in the seed-bed, as thickly as they can stand, until they get the third or fourth leaf. Then they are transplanted, as I have said, to where a crop has just been gathered. In transplanting, we use the transplanting-boards I have so often mentioned. We now have in use five. The closest spacing-board is for celery-plants, 2 inches apart. The next is for cabbage-plants, beets, onions, etc., 3 inches apart. Then we have one for stuff that is a little larger, or wants more room, 4½ inches apart. This is used for twice transplanting, or tomatoes and bushy plants for first transplanting. Then comes the board with the points 7 inches from center to center. This is just right for lettuce, spinach, tomatoes twice transplanted, and a variety of other stuff. The fifth and last one has the points a foot apart. Of course, they are all arranged hexagonally, so as to utilize space that is valuable. This last board, that spaces them a foot apart, is for strawberries where the runners are kept off; for early cabbage-plants to mature under glass, for potatoes grown under glass, etc.

Let us now get back to gathering the matured crop, or nearly mature. Before cleaning off the bed entirely (say of lettuce, spinach, etc.), we first cut out the largest plants where they seem to be crowding. With spinach we go over the bed in this way and keep out any that seem inclined to shoot up to seed. This process can be carried on until it is evident that all the plants in the bed have plenty of room, and are about as good as they will ever get. Then we begin at one end, say where plants are the largest and strongest, and will probably not get any better by being left longer, and clean the bed off entire.

It is a great mistake to cut a crop when it is half grown. Sometimes, however, it pays to do this. In February a customer was very anxious for some spinach. I told him if he was willing to pay 20 cts. per lb. for it I would cut some that was only half grown. This they agreed to do. Now, when the plants are about as large as they will be we get 10 cts. per lb. for it. It is packed for retailing, one pound in a clean new half-peck basket, and the demand is beyond the supply. Why, friends, if this beautiful plant can be really grown under shutters instead of sashes it would be about the nicest business in the world to grow it at 5 cts. per lb.

For spinach the ground must be exceedingly rich—just such ground as we talked about in our last issue, for the new celery culture. The beds where it grows should be largely well-rotted manure. If a part of it is cow manure, all the better; then put on some bone dust and ashes besides, and make the leaves take on that strong rank dark-green appearance. If grown in this way, spinach, like lettuce, will sell almost every day in the year; but on ordinary soil, where the leaves look yellow and sickly, your customers will tell you that they "don't want any."

Speaking of shutters reminds me that I have never yet had a shutter that suited me, and I have spent a good deal of time and experimenting along that line. One of the heaviest expenses in our market gardening is broken glass. If the children do not break the glass in throwing stones, somebody's dog will take a notion to walk over the beds. Well, shutters made of boards will do just as well as glass when the plants are only to be covered nights, or, say, during the most severe freezing weather. These shutters are not broken like glass—that is, if well made; and they ought to be so light that one man can easily handle them. Friend Cummings, of the Lake Shore Canning Factory, has grown nice tomatoes with only boards for protection. The boards are only one foot wide. Sometimes when the frost is severe he uses a cloth cover with boards on top of it. One man can pick up boards a foot wide, and pile them up quite rapidly; whereas, to handle sashes it usually takes two men. Well, now, the ideal shutter should be exactly the size of our sashes. It should be as tight as a sash, and it should stand storms of snow and rain, and the intense heat of the sun, without shrinking and swelling so as to roll up the lumber or make the cracks large enough to let frost through, and at the same time we want it light. The board covering need not be more than ⅜ of an inch thick, if the frame around the outside is made of something heavier to protect the edges. If any of our gardening friends have succeeded in producing a light shutter to take the place of glass I should be very glad to see one. I think there is a field here for inventive genius. The ordinary way is, I believe, to use thin matched lumber in narrow strips, for the narrow strips will not shrink and swell as badly as the wider pieces; but ⅜ stuff, or even ½, is very apt to get shattered and broken unless it is well protected by battens. The nails should be driven through and *clinched*. Then the extreme end of the shutter should have some protection as well as the edges along the sides. The picture of shutters given in Dreer's book seems to be simply narrow matched lumber ⅝ or ¾ thick. That will do very well, but this makes them heavier to handle than they really need to be. After snowstorms are all over, cotton cloth will do very well in place of shutters. But cotton cloth is liable to be weighted down by heavy snows, even in April, in our locality. Shutters are not only needed to keep out frost, but to protect the plants from the heat of the sun when they are just put out; to shade lettuce so as to have it bleached as I have explained; to protect tender tomato plants from being whipped by cold winds, and for ever so many other purposes. Even if we have the cotton sheeting to be rolled up on poles, we want shutters to cover little patches of something or other to follow up where we are transplanting. Now, if any of you have studied on this matter of cheap shutters, I wish you would send me a description of what you have, or a little model, by mail.

HOW TO GROW SQUASHES AND NOT HAVE THEM ALL DESTROYED BY BLACK BUGS AND BORERS IN THE ROOTS.

I have tried every thing that I have heard of except late planting. They understand raising them in Ohio, for there are lots of Hubbards shipped in here from Toledo. I have had a total failure for two years. One year I had two acres, and lost every plant after going over them five times, picking bugs and dusting the vines. C. H. BILLINGHURST.

Albion, Mich.

We have had more or less experience every year for many years past in growing squashes, and we have "licked" the bugs every time—that is, where we grew them on our rich creek-bottom land. On our upland soil we have several times made almost entire failure. First, you want rich bottom land suitable for squashes. Then it wants to be manured tremendously with old well-rotted manure. You want to read "Gregory on Squashes" to get an idea of the amount of manure really needed for a crop.

In regard to bugs, when the squashes are small the only dead-sure thing we have ever found is to cover them with wire-cloth bug-protectors. These are pressed down over the hills, and the dirt packed around so no bug, black or striped, can get under the edges. It takes a good many bug protectors for an acre, it is true; and we have of late years succeeded very well by covering the young plants pretty well with tobacco dust. This is worth almost all it costs, for a fertilizer; but if you have frequent rains heavy enough to wash the tobacco dust off, it will take several applications. After the plants get so large as to crowd against the wire cloth they will usually take care of themselves, but not always. If they do not, you have got to fight; hand-pick the bugs; examine the under side of the leaves for eggs; and if you follow the business right up you will generally come out ahead. The bugs evidently know when a man really means business. The squash grower ought to have a good-sized family of children; and if they all have a common interest with the father in the work the bugs will generally give it up.

The worst trouble when the vines get to running is the borer in the pith of the vine; and there is only one remedy I know of, and that is to cover the vines with earth every yard or so as soon as they begin to run. In good soil, and with plenty of rain, the vines will take root at the joints very quickly; and if the borer commences near where the plants started originally, the damage it does will be only temporary. Plant-lice on the roots are something I have never had any experience with; but I have been told that, if you make a little hole in the soil with a stick, and pour in a little bisulphide of carbon, you will get rid of the plant-lice. Of course, you must be careful not to kill the plants. Hubbard squashes are raised successfully all over Northern Ohio; and we had some very fine ones brought us as late as the first of April this year.

Let me again emphasize having the ground exceedingly rich. I know a man who cleaned out his poultry-house, and put the contents on his garden so much in one place that he could not grow any thing that season—not even squashes. The next year he plowed it up very deep, and had an enormous crop of Hubbard squashes. The ground was so exceedingly rich that the bugs could not stand it. In fact, I have heard of putting so much strong manure around squash-vines that the bugs could be seen going away holding their noses. Strong, rank, offensive manure will very often give the vines such a start that the bugs can not well harm them, and at the same time will repel them by the rank odor. Where the ground is too poor to give a vigorous growth, the bugs seem to make the most havoc.

THE FIRST REPORT OF COWS THAT WILL NOT EAT SWEET CLOVER.

My cow has the range of 40 acres part of the time—one acre in sweet clover, now in luxuriant growth, a foot high, in its second year, and I have not yet seen her touch it, though she eats the alfalfa next to it with relish.

SUGAR-BEETS.

You say the sugar-beet belt is through Wisconsin and Northern Ohio, south of Lake Erie. Perhaps you are not aware of the thousands of acres here in the Pecos Valley, where our *constant* sunshine enables us to raise sugar-beets, which, with our crude experience of a first season just closed, enabled us to raise beets not only of 14%, but by the scores of acres 16 to 20% sugar. One carload ran from 19 to 21%; and this can be done on 10,000 acres yet in unbroken natural state, with our irrigation facilities. I raised beets last season, one of which—not an exceptionally large one by any means—weighed 15 lbs. 6 ozs. with top, and 9 lbs. 11 ozs. as trimmed for the factory.

A HOUSE-APIARY THAT PROVES SATISFACTORY.

On page 242 in Dr. C. C. Miller's remarks on house-apiaries, he says some like them, some do not. I have one for 139 colonies; have just had photo taken of my ranch. You will have no difficulty in picking out the house-apiary. I can do more work at my bees in the house in three hours than I can at the bees outdoors in a whole day; no need for veil, and very little for smoker. Every thing is at hand to work with inside. Bees are not so irritable—no robbing to amount to any thing; all in shade; swarming, not enough to consider; have not had a swarm yet, and have used it over one year. Mine is, I think, unique—so far as I know the only "adobe" bee-house in existence. If there is, or has been one before, I should like to know. My hives are set back 3 inches from wall; bees at liberty to come into the house if they wish, but they don't.

Eddy, N. M., Apr. 12. JOHN SINGLETON.

Friend S., if your cows should run out of feed, and be obliged to eat that sweet clover, my opinion is that, after they have learned how, they would take it in preference to any thing else. Your locality, however, may make a difference. It is not at all strange that they should take the alfalfa first, especially if they are used to it; for I tell you alfalfa comes pretty near being the best "feed" that the world supplies.

We rejoice with you in regard to your success with the sugar beet.

In regard to the house apiary, that may be a little out of this department, but I guess most of the bee-friends will see it. I am very glad to receive such a report; and if you did not live so very far away I should be almost tempted to take a trip down there to see one that works so successfully and is liked by its owner. I wish you would tell us how many years you have used it. Lots of people have reported somewhat as you do; but after they have had the thing three or four years, somehow it gets to be neglected and "beeless."

MORE ABOUT THE APPLE-TREE BORERS.

Quite a number of remedies have been sent in of late, and among them white paint applied to the trees from the roots up about two feet. Before giving space in print to these remedies, however, I thought best to submit them to our Ohio Experiment Station. Below is what our good friend Prof. Green says in regard to the matter:

> I do not know any thing regarding the virtue of white lead for borers, but I do not think it would do any good. Whitewash containing carbolic acid is good. Soft soap and carbolic acid are good also—perhaps the best preparation known. Carbolic acid is the active agent; and if it were added to paint the mixture might be good. There is nothing known that will keep away all borers, and the best preparations are only partially effective
>
> Wooster, O., April 22. **W. J. Green.**

This corroborates, I believe, the experiences of the experiment stations of other States.

SACALINE AND FLAT PEA.

The following is the report the North Carolina Experiment Station has to make in regard to these two plants. Their verdict differs but little from that of our Ohio Experiment Station.

> **Sacaline.**—*Polygonum saghalinse.* Perennial, tall, bushy, broad-leaved plant of the knot-weed family. Grows about four feet high. Stems are woody, and the broad, oval, heart shaped leaves are diseased by a species of rust fungus. Has no value for North Carolina.
>
> **Flat pea.**—*Lathyrus sylvestris Wagneri.* A perennial legumine. Grows three or four feet long, weak and flat on the ground. Requires three or more years to secure a stand, and is then of no practical value for North Carolina.

COW-PEAS.

This same station has the following report to make in regard to the cow-pea, which we have advertised in our seed catalog as "Wonderful" by name:

> "UNKNOWN" COW PEA.—Large, irregular, light brown. Best of all peas for forage or green manure. This pea has been imposed on the public under name of "Wonderful." It is a very late pea.

Very likely this pea would not mature seed as far north as we are; but it is not a very expensive matter to get the seed from a little further south where it is grown.

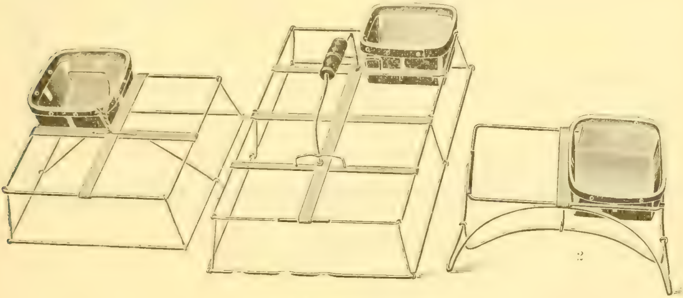
SOMETHING NEW FOR BERRY-PICKERS.

We are in the habit, as our readers may be aware, of advertising, free of charge, new things that come up, where they are sufficiently meritorious. The arrangement below, we think, comes under this head.

Our friends will notice that No. 4 and No. 8 have handles for carrying them, and they are so made that they may be set down in the path or on top of the berries, without crushing any of the fruit nor being liable to tip over. No. 2 is to be fastened around the waist with a buckling strap, piece of tape, or any thing suitable.

For picking raspberries, No. 2 is especially handy. We know this because we have used a similar arrangement for carrying the single boxes. Having two boxes is still better. Here is what the inventor says in regard to it:

> The whole idea is less than sixty days old, and born of necessity. I wanted to sort strawberries as they were picked, and I could not do it with one basket. I will make any size opening desired for boxes.
>
> Pittsford, Mich. **N. J. Kidder.**



KIDDER'S BERRY CARRIERS

The carriers are made entirely of metal, and are to be either varnished or galvanized so they will stand all kinds of weather. With strawberries our boys have been in the habit of taking a nest of boxes; and as fast as they get a boxful it is set down in the path. When they get to the end of the row they go back and gather them up. The greatest objection to this plan is that every little while a box of nice berries will be skipped and left out over night or longer. Another trouble is, some juvenile kicks a box over. When the sun is shining hot we always want our berries in the shade about as soon as a boxful is picked. One trouble with baskets holding eight or sixteen boxes is that every little while somebody loses the slats, or they are stepped on and broken. These carriers have nothing loose about them, to get lost. I should mention that the handle in No. 8 shuts down so that the carriers may be nested in transportation, one slipping inside of the other.

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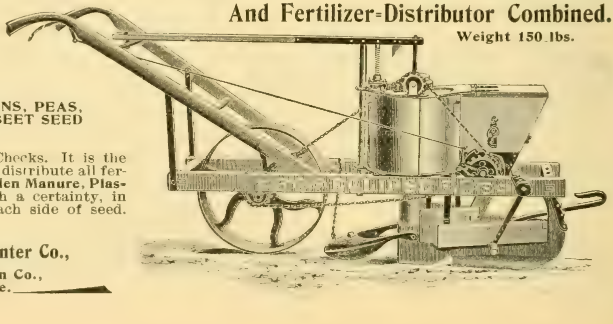

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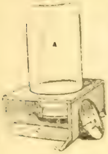

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are lost by keeping old and poor queens. It *pays* big to replace them with young vigorous ones *early* in the season, and get a crop of honey with little swarming. I have now untested queens — either light or dark Italians—single 75c; 6, $4.00; 12, $7.50; tested, $1.00 up. *Guaranteed* to arrive safe at your office, and to be good queens, or replaced free. Remit by M. O. Send for catalog free for particulars. **J. B. CASE, Port Orange, Fla.**

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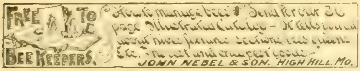
When the order amounts to five or more dollars the goods will be delivered f. o. b. cars Springfield, Ill.

W. J. Finch, Jr., Chesterfield, Ill.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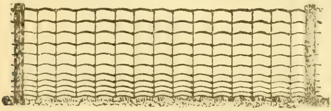

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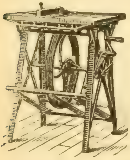

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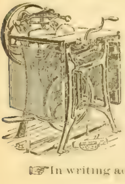

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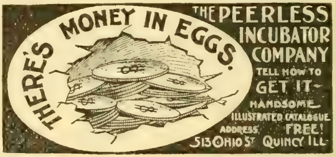
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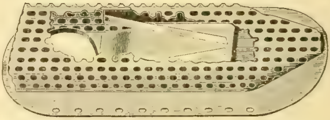

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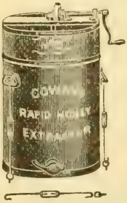

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Best breeds of bees and queens at bottom prices. Don't buy until you see what you can do with me.

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Bees by the pound, $1.00; ten or more pounds, 90c each. Untested queens for 1897, $1.00 each in February, March, April, and May; $5.00 for six, or $9.00 per dozen. For larger amounts write for prices. Have your orders booked for your early queens. Safe arrival guaranteed.

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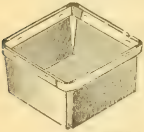

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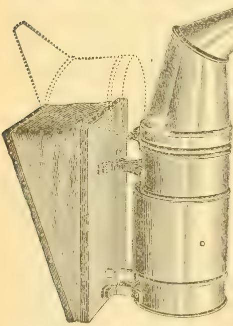

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QUEENS, Either 3 or 5 banded, 75c each; 6, $4.25. Nuclei, and all kinds of supplies cheap. Eggs for hatching B. P. Rocks, 75c; S. C. B. Leghorns, 50c per 13. Catalog free.

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Italian Queens, either golden beauties or 3-banded imported stock. Tested, $1.00 each; untested, 70c each; half dozen, $4.00. One queen to new customer, 65c. P. O. M. O. office, Lavaca, Ark.

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THE A. I. ROOT CO.,
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Wants and Exchange Department.

Notices will be inserted under this head at one-half our usual rate. Advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 c. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED—To exchange standard varieties strawberry-plants and Turner raspberry-sets for any thing useful. H. R. GEBHART, Miamisburg, O.

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J. H. GARRISON, Cor. Louisville and
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I have about 30 fine golden, mismated, and hybrid queens at 25 cts. each, for five for $1.00. They are good queens. G. ROUTZAHN, Menallen, Pa.

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Those interested in second-hand foundation-mills will do well to write for a list of what we have, with samples of foundation made on them. Indicate the size you want, and the grade of foundation you wish to make.

SPECIAL BARGAINS.

We call attention to the three bargains on the third cover page of this issue. We are already shipping quantities of the Mason jars, and the bicycles are selling here like hot cakes. We have already sold here in Medina almost two dozen of these Ajax wheels, and they are giving the best of satisfaction.

MAPLE SUGAR AND SYRUP.

Our surplus stock of these has been sold, although we shall doubtless be able to secure what is needed for any orders that we may receive. We shall hardly be able to make quite as low prices on syrup as we have quoted. For the present we ask for syrup 90 cts. per gallon; 10 gallons, $8.50; 20 gallons and upwards, 80 cts. per gallon.

EXTRACTED HONEY.

Those in need of choice extracted honey to supply their home market till the new crop is harvested, we can furnish in one-gallon cans the choicest Wisconsin honey at $6.50 per case of 8 gallons; 2 cases at $6 25; 5 cases or over at $6.00 per case. Less than a full case at 85 cts. per gallon (12 lbs.). We have also the same quality honey in 60-lb. cans, two in a case, at 7 cts. per lb.

DRAWN FOUNDATION.

The demand for sample lots of the drawn foundation is such that we have not been able to get sufficient stock ahead to keep going while we complete the dies to their full size, 5x8 inches. We are still furnishing the drawn foundation in pieces 2x4 inches, about 8 feet to the pound, cells about ¼ inch deep; 6 such pieces with other goods 10 cts., or postpaid for 12 cts. A box of ½ lb., or 72 pieces, for 75 cts., with other goods, or prepaid for $1.00.

BUSINESS AT THIS DATE.

Orders, especially for sections, were crowding us at such a rate that we have for the past two weeks been running our wood-working department night and day, with two gangs of workmen, and may continue to do so for several weeks to come. We are turning out sections at the rate of 100,000 every twenty-four hours, yet we have been obliged to order a car from another manufacturer to help us out. We don't propose to get behind on orders very far if we can avoid it. We are filling all orders with reasonable promptness, very few remaining in our hands unfilled for a week or longer, and most orders going out within one to five days after being received.

Several carloads have been shipped since last report—one to New York for export, another to Liverpool, England; one to Rawlings Imp't Co., Baltimore, Md.; one to Jos. Nysewander, Des Moines, Iowa, and one to Henry F. Hagen, Rocky Ford, Colo. As we go to press we are loading a car for Syracuse Branch, and another for M. R. Madary, Fresno, Cal.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

CANADA FIELD PEAS.

We can furnish a very nice article, ½ peck, 25c; peck, 40c; ½ bushel, 70c; bushel, $1.25. Ten bushels or more, $1 00 per bushel. The above includes bags for shipping.

SWEET-POTATO PLANTS.

We have now a splendid stock of the two vineless varieties—General Grant and Bunch Yam. We have also nice plants of Yellow Jersey and Early Peabody. Price 5c for 10, 40c per 100, or $3.00 per 1000. You will notice we are offering the new General Grant and Bunch Yam at the same prices as the ordinary sweet potatoes. Later in the season we may be able to give better prices on lots of 5000 to 10,000.

TWO MORE VALUABLE BOOKS.

Our veteran friend Henry A. Dreer has given us two more books, companions to that excellent work which is having such an immense sale, "Gardening under Glass." The titles of the new books are, respectively, "Grasses and Clovers, with Notes on Forage-plants;" and the other, "Open-air Vegetables." The three are called "Dreer's Library." Bee keepers will be especially interested in the "Grasses and Clovers" book, because it has so much to say about plants that bear honey. The frontispiece shows us a photo of six tons to the acre of hay grown by Geo. M. Clark, of Higganum, Ct, and he tells exactly how Mr. Clark did it. The book discusses fully all the clovers, and, in fact, all plants that have "butterfly" blossoms. Those we are most interested in are alfalfa, alsike, bokhara, crimson clover, cow pea, flat pea, Japan clover, mammoth, medium, soja bean, tares (or vetches), trefoil, etc. The book gives the quantities of seed to sow per acre for every one of them, and more or less particulars in regard to the cultivation. There is also a chapter on root crops. Reports from crimson clover are given from different States. The impression seems to be that crimson clover will grow more or less throughout the Northern States when we learn how to manage it. If our readers could see *our* crimson clover this morning (April 26), I think they would have faith that it *can* be grown in Northern Ohio.

The other book, "Open air Vegetables," is a general treatise on growing vegetables without glass. There are quite a number of pictures of crops that are alone worth considerable to the gardener. There is just one picture of a crop of spinach, grown under shutters, that is worth to me a great deal more than the price of the book. I have for some time had the impression that spinach might be grown to perfection, without any glass at all—just board shutters—but I did not know that anybody had ever tried it. Here is a picture of the whole thing. The worst part of it is, however, the picture is all there is to tell the story. The book does not give any directions at all how to do it.

We can furnish either of these books for 20 cts.; postpaid by mail, 23 cts. each.

THE HAND-POWER BREED WEEDERS.

This morning, April 28, I feel like calling the Breed weeder the greatest invention that was ever made in agriculture. The company make a hand-weeder that costs about 50 cents. I will try to give an illustration of it in our next issue. This implement has been lying in our tool-house almost a year, and yet nobody had found out how to use it. Last Sunday we had a tremendous April shower. It made such a crust between our plants in the plant-beds that the ground had begun to crack. I knew by experience that this would greatly injure and even kill many plants just set out. I thought of the Breed weeder, and in a few hours I had the ground nicely broken and fined up between beets, radishes, cabbage-plants, lettuce, and almost every thing else. It is really a stiff broom, made of steel wires, that mashes up the dirt and little weeds while the wires slip around all plants that have sufficient root to stand In some beds of choice strawberries, planted 18 inches apart, it just made the whole bed look beautiful; and it was done about as quickly as you would sweep a floor with a broom.

After we had got the beds finished we took the tool out among the currant-bushes, choice raspberries, and even among the pie-plant that had just been cultivated. The ground was in just that state of mellowness after the rain so the weeder would pulverize and smooth it down. Why, it made every thing look as if the whole premises had been swept with a broom, sweeping out all the little weeds, and leaving the plants. If you want to know more about these machines, write to the Z. Breed Weeder Co., 26 Merchants Row, Boston.

After we got through in the garden across the street, two boys took the onion-weeder and went through a patch of onions that were just coming through the ground; and in a very short space of time they made that onion-patch look as if *it* had been swept with a broom, killing all the weeds, and not hurting the little onions. You see, the onions were planted deep enough so they would not pull out, while the weeds on the surface were all pulverized. Then we went over some ground where we had sown parsnips and carrots, but the seeds had not yet come up. The success of these tools depends absolutely on working the ground when it is just right after a rain, and keeping it stirred so the weeds have no chance whatever to get a start. We have just planted out half an acre of strawberries, and we propose to do the whole cultivation of these entirely with the weeders.

CHOICE POTATOES TO BE GIVEN AWAY.

We find ourselves in much the same predicament that we were a year ago, with more potatoes on hand than we are likely to sell; and if we are obliged to *give* things away we much prefer to give them to patrons of GLEANINGS; therefore we make the following exceedingly liberal offers:

A BUSHEL OF MAULE'S THOROUGHBRED, WORTH $1.50, FOR ONE NEW NAME.

You will notice by the table on page 309, last issue, that a bushel of thoroughbreds is worth $1.50 according to our latest reduction. Instead of a bushel of firsts you may have, if you prefer, two bushels of seconds.

HALF A BUSHEL OF THOROUGHBREDS, WORTH 85 CTS., FOR EVERY RENEWAL AFTER PAYING UP BACK DUES.

Or you may have a whole bushel of Thoroughbreds, seconds, for renewing.

A WHOLE BARREL OF POTATOES, SIR WILLIAM OR NEW QUEEN, FOR ONE NEW SUBSCRIBER.

Or we will give a barrel of New Queen seconds for every renewal.

A WHOLE BARREL OF NEW CRAIG SECONDS, WORTH $1 25, OR ½ BARREL OF FIRSTS FOR EVERY NEW SUBSCRIBER, OR HALF THAT AMOUNT FOR EVERY RENEWAL.

We do not make the above extraordinary offers on these potatoes because they are inferior or of poor quality, but because they were mostly raised on our own grounds, and we had such an extra large crop that we can afford to be liberal with them.

Now, if you prefer some other potato you may select any thing from the table on page 309, at the rate of a dollar's worth of potatoes for every dollar sent us for a new name, or 50 cents' worth for every renewal; and you may have any thing mentioned on the table in this last offer that is not sold out. There are several kinds of which we are nearly sold out, but not quite. We have sold out all of our own growing of the White Bliss, but have made a purchase of some grown away up north in Maine. These will be on hand by the time this reaches your eye, and we will include them at the same rate. Permit me to say that our potatoes are all of them in much better condition than they were a year ago. We are learning by experience. At present writing there are none of them sprouted to hurt them, and very few of them are at all wilted. You need not be afraid of its getting too late to plant potatoes, for you will notice by the report from our Ohio Experiment Station, page 253 of our last issue, about planting as late as July. For many years *our* best crops of potatoes have been secured from planting along the latter part of June or fore part of July providing the seed is kept in good order until ready to plant.

We have not made any *special* offers on Manum's Enormous, because of its wonderful keeping properties. We planted them last season toward the middle of July, and the seed was firm and solid, without a sprout or any wilting. We also secured a good crop of nice potatoes, from this very late planting.

Kind Words From Our Customers.

The goods came all right, every piece being a perfect fit. I am much pleased with the hives, which are just beautiful when completed.
Sand Lake, N. Y. ARTHUR M. PECK.

Going to have a great year for honey; took off some new comb honey last week. J. I. FOOTE.
University Heights, Cal., Apr. 17.

I have taken GLEANINGS a good many years. I like it very well. I like Rambler's story. When it ends, by all means give us another one. Yes, continue footnotes; they are the spice of the paper.
Colebrook, O. JAMES KELLY.

CONVENTION NOTICE.

The spring meeting of the Northern Illinois Bee-keepers' Association will be held at the residence of H W. Lee, at Pecatonica, on Tuesday. May 18, 1897. All are cordially invited to attend. Means of conveyance will be at the depot for the benefit of those who come on trains. B. KENNEDY, Sec.

Root's Goods.

Before placing your order for this season, be sure to send for Root's

1897 Catalog, ready now.

Our 1897 hives, with improved Danzy cover and improved Hoffman frames, are simply "out of sight." Acknowledged by all who have seen them to be a great improvement over any hive on the market, of last year.

Comb Foundation.

WEED NEW PROCESS

Cheaper and better than ever; clear as crystal, for you can read your name through it. Process and machinery patented Dec. 8, 1896, and other patents pending. Samples of the new foundation free.

The A. I. Root Co.,

Main Office and Factory, Medina, Ohio.

Branch offices at 118 Michigan St., Chicago; Syracuse, N. Y.; St. Paul, Minn.; Mechanic Falls, Me.; No. 10 Vine St., Philadelphia, Pa.

FOR SALE.—200 Cases, two 60-lb. cans to case, at 35 cts. a case. I have a large quantity of them; they are new cans, clean and nice inside, but my using steam in storage warehouse caused them to be a little rusty outside. Order 10 cans as sample; speak quick. **WM. A. SELZER,**
10 Vine St., Philadelphia, Pa.
The A. I. Root Co's Philadelphia office.

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Honey Column.

CITY MARKETS.

CHICAGO.—*Honey.*—Fancy white, 13; No. 1, white, 10@12; fancy amber, 9; No. 1 amber, 7; fancy dark, 7@8; No. 1 dark, 7; white extracted, 5@7; amber, 5@6; dark, 4@4½; beeswax, yellow, 27@28. The market is bare of comb honey, and it is well, for there is practically no call for it. A few people use it all the time, but their wants are provided for. Beeswax active for fancy grade.

R. A. BURNETT & CO.,
May 7. 163 So. Water St., Chicago, Ill.

MILWAUKEE.—*Honey.*—Fancy white, 13@14; No. 1 white, 11@12; fancy amber, 9@10; No. 1 amber, 8@9; white extracted, 6@6½; amber, 5@5½; dark, 4@5; beeswax, 26@27. Since our last advice the market on honey has been fairly sustained, and the supply has been somewhat reduced; yet our stock is fair, but we are inclined to the opinion that it will all be wanted before a new crop. The common quality of comb we find rather difficult to dispose of. Extracted has been in fair demand at quotations. Most demand for the lowest value.

A. V. BISHOP & CO.,
May 7. Milwaukee, Wis.

ST. LOUIS.—*Honey.*—Fancy white, 12½@13; No. 1 white, 11½@12; fancy amber, 10@11; No. 1 amber, 8½@9; white extracted, in bbls., 5; in cans, 6; amber, in bbls., 4½; in cans, 4¾; dark, 4@4¾; beeswax, 27@28. It is a little late in the season for manufacturers to use much extracted honey in barrels. Choice white comb honey in good demand.

WESTCOTT COMMISSION CO.,
May 8. 213 Market St., St. Louis, Mo.

CINCINNATI.—*Honey.*—No. 1 white, 12@14; No. 1 amber, 10@12; No. 1 dark, 9@10; white extracted, 5@6; amber, 4@5; dark, 3½@4; beeswax, 22@25. Demand slow for all kinds of honey. Demand fair for beeswax.

CHAS. F. MUTH & SON,
May 7. Cincinnati, O.

NEW YORK.—*Honey.*—Fancy white, 11; No. 1 white, 10; fancy amber, 9; No. 1 amber, 8; fancy dark, 6½; No. 1 dark, 6; white extracted, 5@5½; amber, 4½@5; beeswax, 26.

HILDRETH BROS. & SEGELKEN,
May 8. 120-122 W. Broadway, New York.

MINNEAPOLIS.—*Honey.*—Fancy white, 12@13; No. 1 white, 10@12; fancy amber, 9@10; No. 1 amber, 8@9; fancy dark, 7@8; No. 1 dark, 6@7; white extracted, 6@7; amber, 5@6; dark, 4@5; beeswax, 22@25. Market remains unchanged for both extracted and comb.

S. H. HALL & CO.,
May 8. Minneapolis, Minn.

KANSAS CITY.—*Honey.*—Fancy white, 12@13; No. 1 white, 11@12; fancy amber, 10@11; No 1 amber, 9@10; fancy dark, 8@9; No. 1 dark, 7@8; white extracted, 5@5½; amber, 4½@5; dark, 3½@4; beeswax, 25.

C. C. CLEMONS & CO.,
May 8. 423 Walnut, Kansas City, Mo.

COLUMBUS.—*Honey.*—No honey on the market. Quotable fancy white, 12½; No. 1, 11.

THE COLUMBUS COM. & STORAGE CO.
May 8. 409-413 N. High St., Columbus, O.

DENVER.—*Honey.*—Fancy white, 11; No. 1 white, 10; fancy amber, 9; white extracted, 6; amber, 5; beeswax, 25. We find the sales are improving, but we can not quote better prices. There is too much off grade in the market, and it keeps the price down.

R. K. & J. C. FRISBEE,
May 10. Lock Box 1014, Denver, Col.

PHILADELPHIA.—*Honey.*—White extracted, 5@5½; amber, 4@4½; dark, 3½@4; beeswax, 25. No comb honey in this market but odds and ends. Nobody wants comb honey now. Considerable call for extracted. Beeswax in constant demand.

WM. A. SELZER,
May 8. 10 Vine St., Philadelphia, Pa.

BOSTON.—*Honey.*—Fancy white, 13; No. 1, 11@12; white extracted 7@8; amber, 5@6; beeswax, 25. As warm weather advances, the demand for honey drops off; and, while supply is light, it is fully equal to the demand. Beeswax wanted.

E. E. BLAKE & CO.,
May 10. 57 Chatham St., Boston, Mass.

CLEVELAND.—*Honey.*—Fancy white, 12@12½; No. white, 11; fancy amber, 8@9; fancy dark, 7@7½; white extracted, 6; beeswax, 28@30.

A. B. WILLIAMS & CO.,
May 14. 80-82 Broadway, Cleveland, O.

DETROIT.—*Honey.*—Fancy white, 10@12; No. 1 white, 9@10; fancy amber, 8@9; No. 1 amber, 7@8; fancy dark, 7; white extracted, 5@6; amber, 4@5; dark, 4; beeswax, 25@26. Fancy white comb is not so plentiful, and has sold a shade higher.

M. H. HUNT,
May 11. Bell Branch, Mich.

FOR SALE.—Fancy extracted in 60-lb. cans, and fancy comb (Danzy sections) mangrove honey in 30-lb. cases. Cash offers wanted, f. o. b. here.

H. PRICE WILLIAMS, Miami, Florida.

FOR SALE.—Several hundred pounds extra-quality white extracted honey, in new 60-lb. cans (by sample) to the highest bidder. O. H. TOWNSEND.
Alamo, Kalamazoo Co., Mich.

QUEENS Untested, 50c; doz., $6.00
Warranted, 60c; doz., $7.00
Tested, 75c; doz., $8.00

Imported Italian mothers only are used, and for industry, gentleness, and beauty their bees are unsurpassed. We have in our yard bushels of drones from imported mothers and their daughters, and a mismated queen is rare. No defective queens sent out. Remember that we are in the far South, and can send queens by return mail. Safe delivery. Money-order office, Decatur.

CLEVELAND BROS., Stamper, Miss.

Closing-out Prices on First-class Goods.

10 No. 1E Dov. hives, 8-frame, - $7.50
10 No. 1E Dov. hives, 10-frame, - - 8.50
Best polished sections, $2.50 per M. Other goods in proportion. Let me make an estimate on your wants.

W. J. Finch, Jr., Chesterfield, Ill.

The King Windwheels. Only 1 inch thick edgewise. Six-foot wheel does all general work. Weight of wheel 61 lbs. Latest and highest standard of excellence. Best of galvanized towers. Write to-day for full information to

C. O. WEIDMAN, Sole Mfr., Medina, Ohio.

RED-CLOVER ITALIANS

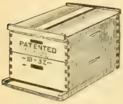
Are fine large bees that work well on red clover. Are bred for business. One untested queen, 65c; two for $1.25; one warranted queen, 80c; two for $1.50; one tested, $1.25; 1 select, $2.00. Queens furnished in season, and satisfaction guaranteed.

C. M. HICKS, Hicksville, Wash. Co., Md.

1000 First-class Sections for only $1.50.

I have on hand about 40,000 strictly first-class 4¼x4¼ one-piece sections. For such sections the leading dealers are asking from $2.25 to $3.00 for a single 1000, but I am anxious to turn these sections into money as soon as possible, and also anxious to increase my subscription list; therefore, as long as any remain unsold, I shall offer 1000 sections and the **Review**, to *new* subscribers, for only $2.50. I will also furnish a tested Italian queen and the **Review** one year, to *new* subscribers, for only $1.50; or a Bingham Conqueror smoker and the **Review** for only $1.75.

W. Z. HUTCHINSON, Flint, Mich.



DANZENBAKER HIVE AND HONEY

won Highest Honors at the Fairs, and pays Premiums to purchasers

of 50 hives,	$50	for the best	100	Danzenbaker sections
" 25 "	25	" "	50	" "
" 20 "	20	" "	40	" "
" 10 "	10	" "	20	" "
" 5 "	5	" "	10	" "

☞Further particulars regarding the premiums, also special catalog of the Danzenbaker Hive and System, furnished on application. Address

FRANCIS DANZENBAKER, Medina, Ohio.
Care of The A. I. Root Co.

Nuclei--Order Now,

of the old reliable queen-breeder, a 2-frame (Hoffman) nucleus and warranted queen (Italian), that is just running over with bees, for $2.75; or will pay express to any part of U. S. east of Mississippi River for $3.50.

Direct the Philadelphia branch of

THE A. I. ROOT CO.,

Wm. A. Selser, Mgr. 10 Vine St., Phil., Pa.

Root's Goods at Root's Factory Prices At Des Moines, Iowa.

Immense stock of the latest 1897 goods now on hand, and more to follow.

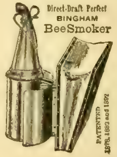
Thousands of Hives and Millions of Sections is our record, and other goods in proportion. We are sure to please you if the best goods at bottom prices and good service will do it. Eleventh annual catalog FREE. Address

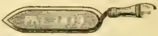
JOS. NYSEWANDER, Des Moines, Iowa.

PRICES OF

Bingham Perfect Bee-smokers and Honey-knives.

Smoke Engine (largest smoker made.)	4 in. stove.	Doz., $13.00;	each,	by mail,	$1.50
Doctor	3½ "	" 9.00;	"	"	1.10
Conqueror	3 "	" 6.50;	"	"	1.00
Large	2½ "	" 5.00;	"	"	.90
Plain	2 "	" 4.75;	"	"	.70
Little Wonder (wt. 10 oz.)	2 "	" 4.50;	"	"	.60
Honey-knife		" 6.00;	"	"	.80





Bingham & Hetherington Uncapping-knife.

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer, I write for a circular. I do not think the 4-inch Smoke Engine too large.
January 27, 1897.
Truly, W. H. Eagerty, Cuba, Kansas.

T. F. BINGHAM, Farwell, Michigan.

A Penny Saved is a Penny Earned.

Yes, it's better than that, for the saved penny you don't have to earn twice. Well, the **Weekly American Bee Journal** will *help* you save your pennies. It is a real money-saver to the bee-keeper who will read and practice its teaching. The regular price is $1.00 a year, or only about two cents per copy. But in order that *new* readers may give it a trial we will send it **for only 50 cents from the time we receive your subscription to the end of 1897.** Now, the sooner you send the half dollar, the more copies you will receive. Send 1c stamps if more convenient. Sample copy free.

GEORGE W. YORK & CO., 118 Michigan St., Chicago, Ill.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO.

Vol. XXV. MAY 15, 1897. No. 10

STRAY STRAWS

FROM DR. C. C. MILLER.

SECTIONS fresh from the factory don't need any wetting before making.

ONE POUND of Root's thin foundation, cut to fill sections *full* (3⅞ x 3⅞), will fill from 92 to 112 sections.

GALLUP reports in *American Bee Journal* that his bees worked on buckwheat six miles away, and didn't seem much exhausted with the journey.

BOTTOM STARTERS have been objected to by some; but I am reassured by the strong indorsement R. C. Aikin gives them, p. 320, and feel just a little proud that I was the "starter" of the plan—at least I *think* I was. [Yes, I think you were the starter.—ED.]

PIOUS MEN are reminded that, if the Lord hears the grace they say at meals, he also hears the comments they make to their wives afterward.—*Atchison Globe.* [That is so—pass the paragraph around. Perhaps its general circulation will lift the plane of Christian living in the heart of many a man.—ED.]

IF SECTIONS must have joints wet before making, use *boiling* water. Use a funnel with a wooden plug that nearly stops it, and have the plug whittled down to a point. Then the fine stream of *hot* water running from the point will run down through the whole box, using little water and wetting only the joint.

BRO. AIKIN, on p. 319 you think the difference in appearance of sections with the dovetailed corner is "not enough to be seriously considered." Your morals must be looked after. When the dovetailed corner is up it has an unpleasant one-sided appearance, and, besides, you can't clean the glue from the dovetails as you can from a plain corner. [What do you say to this, Bro. A.?—ED.]

MR. EDITOR, on page 338 you say you'll cut off ¼ inch from each end of your top-bars. I did that thing, and now wish I had cut off only $\frac{3}{16}$, for I think you'll find the projections of Hoffman top-bars are $\frac{11}{16}$ instead of ¾. [If you will turn to the editorial in question you will find that I said *about* ¼ inch. For the Dovetailed hive, $\frac{3}{16}$ is a little more exact than "about ¼ inch," and perhaps I should have so stated. —ED.]

APIS DORSATA. The plan of testing their domestication on their own ground, as proposed on p. 839, is just what I have advocated But I think it's a serious mistake to say, "If they could not be domesticated they might be of advantage in the fertilization of certain flora by letting them run wild in the South." What flora needs fertilization? Wouldn't wild dorsata consume honey that without them would go into hives? [Very likely you are right.—ED.]

EXTRA-THIN FOUNDATION has not suited me as well as thin, for two reasons: It sags more, and the bees gnaw it when a lull comes in storing. Now, if drawn foundation doesn't sag, and the bees don't gnaw it, and it can be had as thin as extra-thin foundation, I think I want it. [You do not even now state, doctor, whether the extra-thin foundation that did not suit you as well as the thin was the new or old process. The new process thin is now as thin as the old extra thin.—ED.]

T. F. BINGHAM *may* be right, p. 325, about sections being filled with honey, "half of which has been brought up from the previous year's gathering, to make room for brood," and I think he's in accord with the popular idea; but I'm a little skeptical about it. Before the honey-flow begins, don't the bees empty the cells of honey full faster than they fill them with brood? and when the flow begins don't they carry the *new* product upstairs? Did you ever find buckwheat honey in sections before clover harvest?

"AN OBJECTION to the bent nails" for end-spacing of frames, you say, Mr. Editor, on page 335, "is the difficulty of driving them into position." I take straight nails, drive them in straight, then bend them after driving. No trick at all. See the sample I sent you some time ago. But I'm going to try the staples, and shall be glad if they prove better than nails. [Yes, it is true that a nail can be bent over; but on account of the spring of the wire the point of the nail generally fails to imbed itself into the end-bar; but staples, if you will try them, you will find to be very much better than nails. With the former the frames will hold their end-spaced position nearly ⅜ inch above the tin rabbet.—ED.]

OF TEN COLONIES WINTERED OUTDOORS, 80 per cent came through alive. Of the remaining 90 of the same apiary, wintered in cellar, 100 per cent came through alive. Those outdoors were well packed overhead with an extra story beneath, but no packing at sides. The winter was unusually mild. The other two apiaries were wintered in cellar, and all lived except three queenless, and one that (say, Mr. Printer, couldn't you print the next word smaller so it wouldn't be noticed?) starved. [I am surprised that you obtained as good results as you did with your ten colonies outdoors. If they had had packing *all around* I think you would have saved the other colonies, and the other eight would have been stronger. Packed space above is good, but not enough—at least for our locality; and, if I am any judge, the winters are much colder in Marengo than here in Medina. But your results in the cellar were good —very good.—ED.]

PROBABLY T. F. Bingham and B. Walker are both right. Honey to be called "fancy" should be *fancy*, and our fancy grade is so worded as to admit scarcely any honey. One trouble is, that the designation of grades is not strictly honest. When you stop to think carefully about it, you'll not consider the names "fancy" and "No. 1" a very strong testimony to the truthfulness of bee-keepers. [I have been consulting with a number of prominent bee-keepers in regard to the present rules for grading, and it is very evident that they need some slight modification. I believe it is useless to try to get a convention of bee-keepers to fix up a set of rules that will be generally acceptable; and if Bros. York and Hutchinson will go in with me we will take our present rules and make them more nearly what they ought to be. After all, it is the bee-journals that give currency and value to any system of rules that may be adopted.—ED.]

PAPER BETWEEN SHEETS of foundation is a nuisance *for this locality*. It takes an hour to pick the paper out of a 25-pound box, and it must take some time to put it there, and I don't know of any possible good it does. This year I had one box come without paper, and it came just as nicely as the papered. What's it papered for, anyway? [Our brood foundation is papered by machinery, and a little later on our thin and extra thin will also be papered in the same way. I am rather of the opinion, however, that there is no very good reason why paper should be used; and why we do is because we are afraid to try the experiment of leaving paper out. While the expense to us is but trifling, we should be very glad to leave it out entirely, if the trade would not object. We should be glad to hear from our readers on this point; and when authorized to do so we will willingly send out shipments without paper, but hardly dare to do it otherwise.—ED.]

ONE REASON why the Rietsche press is so popular in Europe is the amount of adulteration in the foundation that is sold. I'm heartily thankful that we can order foundation, and feel just as certain of its purity as of the water in our wells — perhaps more so. [The foundation-makers of this country know that the adulteration of beeswax for foundation purposes would be bad policy, both financially and morally; and very fortunately, as I have explained, the new Weed automatic sheeting-machine will not handle paraffine or ceresine, even when mixed with beeswax. There is a dental trade that calls for mixtures of beeswax and earth waxes; and in endeavoring to make the Weed sheeter handle such products we found it was worse than a balky horse. Even ten per cent of paraffine with pure beeswax would show itself in the sheets. Bee-keepers can, therefore, depend upon it that the new-process foundation must necessarily be pure, for it can not be new process and be adulterated.—ED.]

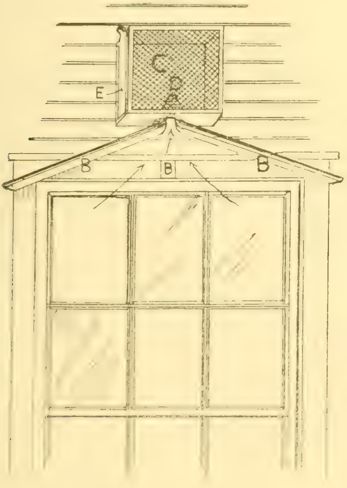
EMPHATICALLY, I believe friends Abbott and Thompson are right, on p. 321, in thinking that well-ripened honey, honey with a "body," is slowest to granulate. Also, friend Abbott is correct in placing alfalfa as the honey that interferes least with the flavor of whatever it sweetens. It has the least flavoring of any honey I know of, and I like it best in tea or coffee—or, rather, postum cereal. [We have been using postum cereal at our house for months back, and personally I very much prefer it to the best grades of Java or Mocha coffee. Lately we have been using what is known as magic cereal, and are inclined to prefer it, because there is no sweetening in it as is the case with postum cereal; and from a health standpoint, as a substitute for coffee it is very much better; and I believe the time is coming when many will say that it is not only better but very much cheaper. Cereal drinks are nutritious, while coffee is a narcotic, and decidedly an enemy to good digestion, if the word of our best physicians means any thing. Magic cereal, having no sweetening, would be more acceptable to the bee-keeper, as he could sweeten it with alfalfa honey just to his liking. Hurrah for magic cereal and alfalfa honey!—ED.]

Ridge-Pole Musings

By R. C. Aikin.

WINDOW ESCAPES AND TRAPS.

In a former article I told how I used our covered wagon in removing surplus, and some little about my method of carrying the honey into the honey-house and letting the bees out through the window. For several years I have had my honey-house windows screened in such a way that, as the bees passed up, they massed at one point and passed through a hole into a box or trap placed above. As an illustration will tell this better than words, we will show you the arrangement. The trap should be about 8 or more inches high, as much wide, and 4 or 5 inches thick. One of the 4 inch sides should be made into a slide door, or at least removable, and the whole trap made detachable from the building or window. The trap is designed to remain on the window at all times when not needed off, yet when removed there is still the point of exit above the window — the same principle now in use all over the country in honey-house windows. The trap will act as a fly-trap, and catch any insect passing out that can not pass the meshes of the screen.



REMOVING SECTION HONEY.

In taking off sections, the times that they can not be removed without the bees breaking the cappings are *very* few. Much depends on the manner in which it is done. I have had so very little trouble of this kind that I never stop to consider the question, though I know there is sometimes danger by careless work. Aside from robbers there is never any likelihood of the cappings being marred if there is honey being gathered, or if there be plenty of open cells within easy reach. I have many, many times removed supers that were solid sealed, and no caps disturbed, when no honey was coming in.

Let me tell you how to have the bees bite the cappings, then tell how to prevent it. Just go to the hive and work about it carelessly for five or ten minutes. Get the bees alarmed by a *little* smoke, and yet let them remain in the super. Take plenty of time to get the super off, and perhaps look around awhile or talk to some one who may be about. In short, go about it in a leisurely, careless manner, and if there is not open honey in the super, and sometimes when there is, you will get some cappings cut that the bees may load their sacs.

Here is the other way: Go with your smoker in good trim, start the cover, and, before the bees know what is up, shoot smoke *over* the sections. Keep things moving; and as the cover is clear removed from the super, and the bees starting down, *follow* them with the smoke and *keep them going*. Do not smoke ahead of them, and do not smoke too much at one place, but smoke all parts of the super, turning the smoker at various angles to hit all corners. Just as soon as the bees are well down in the super, *at once* remove it from the hive; and if your yard is nicely grassed, swipe the bottom of the super on the grass to brush off the adhering bees, or brush them off with a big grass or other brush, then set the super on end in the yard or remove at once to the house and set it before the window. In this operation the bees have not had time to dig open cells of honey, but rush around to get away, and those that go into the house on the honey will soon make for the window. It is possible a little damage may sometimes be done; though if honey be removed when it should be there is almost no trouble to speak of. I have practiced this at all times when bees could fly, and I think not one super in 100 is damaged.

REMOVING EXTRACTED HONEY.

Extracted honey I remove in the same way as sections, though it is more difficult to get the bees out of deep combs than out of sections; hence more bees are carried into the house. Suppose I am at the home yard, and want to extract, say, 500 or 1000 pounds. I go to the yard and remove the extras, not stopping to handle frames singly or brush bees off, putting on another chamber in the place of the one removed, or not, as the case requires. When I carry the honey in, it is set near a window so as to leave the supers as open and airy as I can; and by the time I am ready to extract, the bees are out sufficiently.

Those bees that pass out are, of course, trapped. It would not be necessary to trap them; but the young that do not know their home will congregate on the window or house, and stay there, so I just trap all and carry them to the yard and liberate them there. If one wants to get those young bees in some certain hive to strengthen it, just lay the open trap on or near the hive they are wanted in; and while the most of the young will go there, the older will mostly go to their respective homes. Should the bees all be from an outapiary, they can be hived where wanted, and will all stay there, for they are in a "strange land."

Hive-escapes I have not used very extensively; but smoking and brushing I have practiced largely, and the window method in a wholesale way. The escape no doubt has its place; but for large and out apiaries they will not do the work rapidly enough. My experience had taught me that I could rapidly free supers of bees in the open air and in the house, and that is why, a few years ago, I raised the question of improvement in escapes. Since then the matter has been discussed over and over; new forms of escapes have been brought out, yet it remains a fact that the question is *not* solved. My opinion is that it will not be solved by any method that leaves the super and the colony in a manner connected so that communication can be had, or that has a small outlet. Either of those factors will defeat the purpose. The super bees must be *lost from home;* and when the excitement is on they must not be hampered in their going.

[M. H. Mendleson, one of the most extensive bee-keepers in the world; J. F. McIntyre, another big honey producer, besides a score of others who raise honey by the ton and carload, think the hive-escape is a great success, indispensable, etc. It does not seem to me that the hive-escape problem is an unsolved problem in view of the opinions of such bee-keepers. Your instructions on how to and how not to cause bees to uncap honey in removing the same are excellent.—ED.]

QUEEN-CELLS BY WHOLESALE.

NEW VS. OLD METHOD.

By H. L. Jones.

Friend Root:—Under separate cover I am forwarding you photos illustrating results achieved by the "new-fangled plan" of queen-raising that you wrote unfavorably of in GLEANINGS, July 1 and Aug. 1, 1895. I felt sure that some of your leading breeders would take exceptions to your evident retrogression in going back to the "good old-fashioned way;" but if silence gives consent they must all indorse what you have said, which is indeed quite incomprehensible to me unless conditions for queen-rearing are not identical in our respective countries.

Your first objection, that the cell-cups are too expensive to make, is soon dispensed with, since there is no necessity for making the cups, as a strip of drone comb, which can be prepared and attached in a couple of minutes, is preferable. I have not made a cell-cup for years, but have raised thousands of queens on the drone-comb principle, as per Fig. 1. In the lower frame you will notice 17 fine large cells completed out of 19 furnished; in the center frame, 17 out of 18 have been accepted; while in the top frame all the cells are in a fair way toward success. Could you, by the "good old-fashioned method," *average* the same number of fine *available* cells?

One big advantage of the "new-fangled plan" is that you know that all queens are started from young larvæ, and will, therefore, be fully developed. You can also tell to within a few hours when the queens will hatch, if you have been careful to utilize larvæ of only the right age, and experience will soon teach you this. By the method you follow, of allowing the bees to build their own cells as they wish in colonies from which you have removed breeders, the cells must, to make a sure thing of it, be cut out on the tenth day, and will then continue to hatch up to the sixteenth, instead of the lot in about 11½ days, and you can figure out what a vast difference in the net results this variation in time must make where over 1000 per annum are raised. Then, again, these drone-cell cups, by being built all together in one compact cluster, require fewer bees to maintain the requisite temperature; the cells are not joined together so that they can not be separated without destroying one or more cells, and there is no mutilation of brood-combs.

Another good feature about these cells is the ease with which they all fit into the West cell-protectors, just as if they were built to order; and I may mention that I would just as soon think of producing extracted honey with an old one-frame honey-slinger as to raise queens in quantity without the aid of cell-protectors and cages. I give a ripe cell in one of these cages at the same time that I remove the reigning queen; but when sending off young queens that have been laying only a few days I usually give a virgin queen from one to three days old, liberating her right on the combs at the same time, and have very few destroyed. Look at the lower row of cells in Fig. 1, which are within 24 hours of hatching, and you will notice that they are so much surrounded with comb that only the points of the cells are visible; and I find that, when used without protectors, they are less liable to be torn down than the ordina-

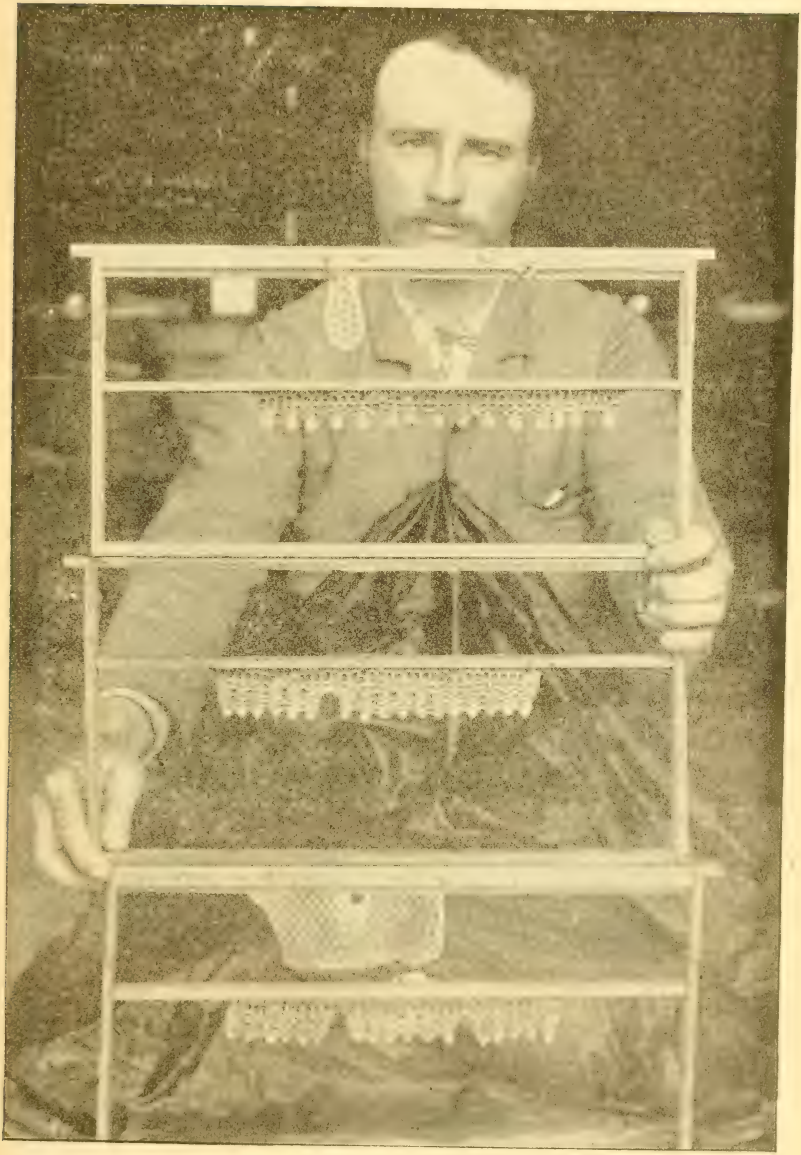


FIG. 1.—QUEEN-CELLS FROM DRONE-COMBS.

ry cells, as the thick incrustation of comb protects them. In removing these cells from the bar I place my queen-cell knife on the hot barrel of the smoker for a few seconds, and then cut off the whole row of cells as easily as cutting butter; the warm knife is then slipped between each cell, dividing them ready for the cages. I can assure you that it is a pleasure to handle these cells after those built hap-hazard on the combs. I don't know whether you have ever tried this drone-cell plan; but in any case I will describe briefly the *modus operandi.*

Toward the end of winter I select several of my finest colonies as drone-producers, and, after removing the lids, place an empty super on each, and then cover the frames with good thick cushions stuffed with cotton, and then on top of each super I lay a sheet of glass. We usually have bright cloudless days, and the increased warmth thus generated induces the bees to breed more rapidly, and I thus manage to secure thousands of fine drones much earlier than I otherwise should. When the weather becomes warmer, and the strength of the colony will admit of it, the glass is dispensed with. A zinc honey-board is placed on, and the bees induced to work in the upper story, and are then devoted to completing cells as per photo. Sometimes I place the prepared cells at once into these upper stories, but usually place them in a strong queenless colony for a couple of days before placing them in the upper story, by which method very few cells will be refused, and results identical with those shown in the photo will be achieved.

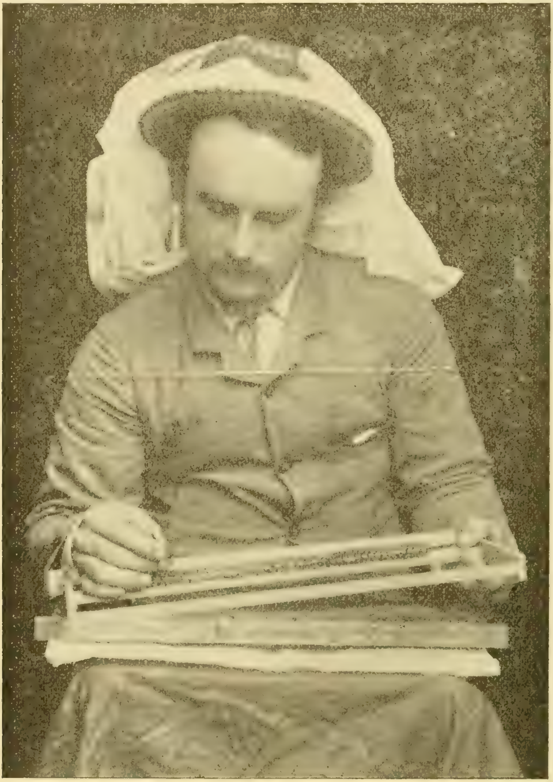


FIG. 2.—INSERTING THE LARVÆ.

To prepare these cells I cut off a row of drone-cells, and then cut them down to about ¼ inch in depth, after which I attach them to the bar with melted wax. A little royal jelly is then placed in each cell nicely, at the bottom. Next I obtain a frame containing newly hatched larvæ from one of my choice breeders, and then, seating myself in a chair in front of a strong light, I place a sheet of paper on my knees, and on this lay the frame of brood, and transfer the larvæ as per Fig. 2. The center bar being secured by one nail only at each end, is grasped as shown, and can be moved to any angle so as to strike the light. The little stick used for transferring the larvæ is simply a piece of section stuff about 2½ inches long, one end being about ⅛ inch wide, and the other about 1/16, and as fine as can be sharpened, with the point bent just a little so as to slip under a larva. The larger end of the stick is used for placing the royal jelly in the cells, and occasionally for bruising down a cell so as to get conveniently at the larva. Fig. 2 shows the act of placing a larva in a cell; and the supporting-bar, being wider than the cells, acts as a rest to steady the hand, so that the larva can be placed in the bottom of the cell very gently. I can't, for the life of me, imagine how you can raise *more* queens by the old-fashioned method.

Goodna, Queensland, Australia.

[The proof of the pudding is in the eating. The proof of your statements is shown in the half-tone plates herewith reproduced, and I am very glad to take back all I have said that could be in any way construed as reflecting on the new way of queen-rearing. If the results shown in Fig. 1 are what you secure on the average (and I have no reason to question it), then any queen-breeder who does not use your method, or one equally good—for instance the Doolittle, is not looking to the interest of his pocketbook. It was G. M. Doolittle who first made a success of having cells built in regular "rows on a stick." A good many have since made a success of his plan, although some of us did not succeed to our satisfaction. It was J. D. Fooshe, I believe, who first made a practical success of raising queen-cells from drone-cells. As I judge, you have simply followed out or elaborated his plan. One thing is certain, friend Jones: If you and Fooshe and Doolittle can get such results as these, then we old fogies who have not made a like success had better work and plan until success is achieved. You may be sure the plan outlined above will be fairly tested in our apiary; and if we do not succeed we shall keep on fussing until we do.—Ed.]

BEE-CELLAR EXPERIENCE.

HOW TO CONSTRUCT A BEE-CELLAR.

By G. C. Greiner.

The severity of our winters in this mountainous section of Western New York makes wintering of bees on their summer stand in single-walled hives an uncertain affair. I find that a proper bee-cellar is a necessity if we expect to be successful in the pursuit of bee-keeping. The cellar of which we give an illustration is the result of one complete rebuilding and several thorough overhaulings, caused by faulty construction and mistakes at the beginning. We all make the common mistake of reporting our successes—are too apt to give the bright side of the picture, while we are very reticent about saying any thing regarding our failures. It would have a tendency to keep others from making the same mistakes if we would be a little more frank in reporting ours. For this reason I will mention a few points that made my bee-cellar the source of a great deal of work, and caused the loss of many colonies.

The cellar is dug lengthwise into a bank of such elevation that the 22 feet of length makes the front just level with the outside, and the back wall 7 feet high. The bank is perfectly dry ground. After the top soil is removed, perhaps 1½ or 2 feet, the soil is what we call hardpan — bluish clay mixed with gravel, and so hard that it requires an extra effort to penetrate it with any kind of tool. After the excavation had been completed there was no sign of any moisture, nor any indication that there ever would be any, and, in consequence thereof, the first and most serious mistake was made by not providing proper drainage in case it might be needed.

Inside of this excavation, about 15 in. from the bank walls, a frame of 2 x 4-inch scantling was erected, using the same for sills and plates, and setting the studding every 2 ft. all around. The inside was ceiled up with matched chestnut lumber; and as fast as this advanced, a loose stone wall was laid between this and the bank. The covering was twofold — 2 x 6 joist, with the same ceiling on the under side for the lower one, and rafters with a tight layer of roof-boards, and about 15 inches of dirt on top of them for the upper one. The whole, when finished, had the appearance, very much, of one of our common potato-pits. The front was ceiled on both sides of the 2x4 studding, leaving a dead-air space of 4 inches between. An air-tight partition, 4 feet from the front, divided the cellar into two apartments — an entry, or hall, and the cellar proper.

At the proper time, in the fall of 1886, I put 90 colonies into this cellar, and what was the result? All went well the fore part of winter. The temperature in the cellar remained about 46 degrees, and the bees seemed to be doing nicely. About the middle of January the weather changed; winter seemed to be broken, and a warm springlike spell took its place. This did not affect the cellar at first; but after the ground thawed out more and more, the bottom began to show signs of moisture, which increased from day to day at such a rate that, in a short time, the cellar bottom was flooded. The only way out of this dilemma was to dig a ditch through under the doors into the open air, and let the water run off.

But this was not all. With the thaw we had rain, and soon the ceiling overhead became moist also. After a little, drops began to trickle down here and here. They came thicker and faster, until the bees were exposed to quite a respectable rain-shower. I had made the (second) mistake of considering the 15 inches of dirt covering as a rain-proof roof. As long as the ground was frozen it did very well; but when it was thawed out it was no roof at all. Under these extremely unfavorable conditions we could not expect bees to winter, and it was a wonder that any lived until spring.

Of the 90 colonies I put into the cellar in the fall, about half were dead in the spring, and most of the survivors were only fractions of colonies at that.

The succeeding fall I built a board and slate roof over the dirt. I imagined that all the water trouble was caused by the imperfect roof. This made the cellar water-proof from above, but it remained the same under foot. The first thaw we had that winter, water again made its appearance, and the cellar remained wet the rest of the winter. The loss of bees was about the same as the winter before—a half or over.

About this time I concluded that wintering bees at that rate did not pay, and decided to have a bee cellar if mechanical workmanship could produce one. The first move was to take the whole structure down and out of the way. A ditch was then dug next to the bank, a foot wide, commencing in the center of the back end, with one foot deep, gradually increasing each way to 1½ feet to the outside corners. As the bottom of the cellar had already a fall of 6 inches from rear to front, this gave the bottom of the ditch a fall of one foot to 26 ft. in length, and this fall was continued to the outlets of the ditch, about 3 rods from the cellar. The ditch was stoned up in the usual blind-ditch fashion —a throat, by laying round stones on each side, and flat ones to cover, and the remainder filled with small round ones just level full.

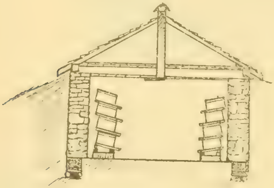


FIG. 1.

On this ditch a substantial 18-inch stone wall, 7 feet high, was laid, using first-class mortar throughout, and giving the inside a thorough painting of waterlime. The wall, being 6 in. thicker than the ditch is wide, lapped that much on to the solid cellar bottom, and, with the cement paint reaching well down and filling the bottom corner, shut off all possible passages from ditch to cellar, so that the structure is positively mouse and rat proof from that direction.

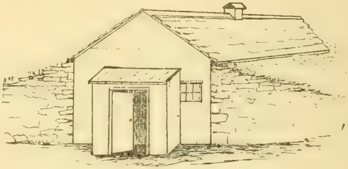


FIG. 2.

A frame of 6x8-inch timber, with 2x8-inch joists framed in at every 2 ft., rests on the wall. The joists are ceiled with matched lumber below, and covered with a double floor above, forming dead-air spaces all along between the joists. The impression received during school-days of early life, together with what has been written now and then in the different journals, on the subject of a dead-air space being a non-conductor of heat and cold, and consequently a safe protector against atmospheric changes, led me to the conclusion that my bee-cellar would be perfectly safe with this protection overhead. Besides, another dead-air space, formed by the roof, protects the former from coming in direct contact with the atmosphere.

From the first two winters' experience I am fully convinced that the dead-air-space theory is greatly overestimated. It is all right so far as it goes, but it does not go far enough. I made these observations:

Every thing seemed to be satisfactory until, with the lengthening days, colder weather set in, the mercury ranging for weeks in the neighborhood of zero, at times going as low as 15 or 16 degrees below. At this time the ceiling again began to show signs of moisture. The moisture gradually increased ; drops formed here and there, and occasionally they could be heard to strike on the hives or cellar bottom as might happen. Although this was not a pleasing feature of a bee-cellar, no serious results followed. Bees wintered quite well; every colony that was put in in the fall answered to the roll-call in the spring.

The next winter brought nearly the same experience—not quite satisfactory, on account of the moisture overhead. I then tried chaff packing instead of the air-spaces. By opening the floor in the middle, all spaces between the joists were made accessible, and these I filled with oat chaff, using a tool something like a stable-scraper, to pack this filling as tight as possible. Since this change was made the ceiling has remained perfectly dry every winter, showing plainly that, for protection, a non-conducting material is more effectual than an air-space.

The ventilator shown is a wooden tube six inches square, with a four-foot elbow in the roof, and a slide to close it, if desired, on the lower end. While this provides an outlet, no provision is made for an inlet, and I hardly think this is necessary. The same current of air which escapes through the ventilator must be replaced by an equal current of outdoor air from somewhere; and that this circulation is going on all the time can be plainly seen by the constant escape of vapor when the weather is cold enough to condense the warmer air from the cellar and make it visible. Our so-called air-tight structures are by no means hermetically sealed. Doors do not shut air-tight; the matchings are a little defective here and there; the lumber itself may have small openings, cracks, or pinholes; the ditch may be the means of supplying a certain current, etc.; so that, take it all in all, a sufficient amount of air may find its way into the cellar to cause quite a circulation.

The illustration, Fig. 1, has also a stormhouse attached to the cellar, which was built a few years ago. I did not deem it necessary for the comfort or better wintering of the bees, although it may be an additional protection; but I built it for my own benefit. I found that it required a considerable amount of work, every time I went into the cellar, to clear away the snow, frequently two or three feet deep, to let the door swing open. The stormhouse prevents all this trouble. The door swings in, and can be opened at any time, snow or no snow. In entering, of course care must be taken not to let any snow tumble in, as this would interfere with shutting the door.

Naples, N. Y.

[Although this article is a little out of season, recent experiences will be fresh upon the mind, and so I have thought best to give it now rather than in the fall.—ED.]

SWEET-CLOVER SYMPOSIUM.

Will Horses and Cattle and Other Stock Eat Sweet Clover if They Have a Chance to Get at it?

NAMING SWEET CLOVER.

Bro. Root:—Permit me to suggest that you do not be in a hurry to change your views as to the classification of sweet clover given by Prof. Gray. There is just as good ground, and I think better, for accepting his classification as that given by Mr. Esenhower. You will not need to examine any more "classical" work than the Edinburgh edition, of 1878, of Chambers' Encyclopedia, to find the classification as given by him; for it appears there in almost the same language in which it is given in GLEANINGS. This is an English classification, and I am at a loss to know why it is so made. The yellow melilot (*M. officinalis*) is so called from its early use in medicine; but as it is the species which runs wild in Europe, and is common everywhere, there is more reason for calling it *M. vulgaris*, or common, as this is what the Latin, *vulgaris*, means. *M. alba*, as given by Gray, is after the old and long-accepted classification of Lamarck, and simply means, as every one knows who has any knowledge of the Latin, *white* melilot; and as it is not common, except in a few localities in Europe, this seems the most fitting name for this species, in that country at least. There might be some ground for changing the name to *vulgaris* in the United States; but as the species has the special characteristic of a white flower, as well as being common, it would seem a needless change. The name *leucantha*, which is also given in the English classification, is a Greek word which means the same as the Latin *alba*, white; so that this is practically the same classification which Prof. Gray adopted. The tendency to name the species according to the color of the flower is further seen in *M. cœrulea*, as this simply means *blue* melilot. If it had not been for the supposed medicinal qualities of the yellow sweet clover, it would no doubt have been called *M. gilva*, taking the specific name from its color, the same as in the other two species. I am very much inclined to agree with Mr. Jones' idea. that "bokhara clover" is the same as *M. alba*, and that the name, "bokhara," has been wrongly applied to it. As I suggested in another article, I think the name bokhara more correctly belongs to a species of alfalfa.

M. arborea simply means "tree melilot," and I can well understand why the tree-like form and rank-growing *M. alba* should come to be called "tree clover," when compared with the low-branching and finer-strawed yellow sweet clover.

I think perhaps the other species mentioned by Chambers, which was found mostly on the islands of the Mediterranean Sea, and along the coast, is simply a variety of one of the species named above.

If my position is correct, you are not likely to be able to get seeds of any more species than you now have. My presumption is that we shall be entirely safe to trust to the classification given in the new edition of Gray's Garden and Field Botany, as revised by Prof. Baily. I, for one, am willing to take my chances in agreeing with these two eminent American botanists as against the writer of the article in Chambers' Encyclopedia, or any other so-called "classical" work. EMERSON T. ABBOTT.

St. Joseph, Mo., Apr. 17.

[In regard to the tree sweet clover, somebody in Florida or Texas wrote some years ago that "away down south" sweet clover makes a hard-wood tree, and stands over winter; and they seemed to think it was the same sweet clover we have here in the North. Who can enlighten us?—ED.]

STILL MORE ABOUT OUR VARIOUS SWEET CLOVERS.

Mr. Root:—You express the belief that there is no difference between the plants of yellow and white sweet clover. On the following page (266) of GLEANINGS you give a letter from Mr. Esenhower, which I found interesting, though I shall be obliged to disagree with the gentleman, or his authority, in regard to some points.

He names but a few varieties of sweet clover. I can add a little to his list, though I can not complete it, for there are at least ten known species—some authorities say twenty—many of which have never yet been classified. He says: "Gray's Manual does not thus classify melilotus," while you say you have always made Gray your standard, etc.

Gray is all right in the main, when you keep within his range; beyond that he counts for nothing. His range ends at the 100th meridian, where he is met by Prof. Coulter, with his "Manual of the Rocky Mountains." How, then, can Prof. Gray be expected to classify plants belonging strictly to the Old World? There are mistakes in his manual, it is true; but they are those of omission rather than commission. Strictly speaking, none of the sweet clovers are natives of the United States; and up to the present, *M. officinalis* and *M. vulgaris* (or *alba*) are the only two that have ever taken out papers of naturalization, and become bona-fide citizens. You say you have *M. cœrulea* (the blue-flowered melilot). I was intending to send to Europe for seed of that variety; but if you have it I shall not cross the ocean to obtain it.

Let me call attention to a somewhat curious fact. English botanists do not refer to melilot as *sweet* clover, but only as melilot, or melilot clover—meaning honey clover, the adjective sweet being of pure American origin.

I am aware that authorities often differ on many subjects, all of which is very confusing to the earnest seeker after truth; and the best thing left us is to discriminate as far as possible between them. I have a good many authors on botany. I have encyclopedias, and various works of reference. How many Mr. Esenhower may have I don't know; but certainly his and mine don't seem to agree in all things. All mine do agree in one thing; viz., that *M. alba* or *vulgaris* are both correct as applied to the white-flowered variety of sweet clover; also that bokhara clover and *M. alba* are one; while the two varieties he mentions, *M. arborea* and *M. massimensis*, are entirely ignored by any work I have.

The word *massimensis*, taken as it stands, would mean, as translated from the Latin, a monthly bloomer. All the melilots are derived from two Greek words—*meli*, honey, and *lotus*, meaning the quantity of honey it contains.

Permit me now to quote from the New Encyclopædic Dictionary, page 3087, constituting what I regard as a true botanical classification of the melilot.

"Melilot, a genus of papilionaceous plants, sub-tribe *Trifoliœ*. Leaves trifoliate, the flowers in long racemes; calyx, five-toothed; petals distinct, deciduous; keck, obtuse; legume, one or few seeded indehiscent, longer than the calyx. It is found in the warmer parts of the Old World; known species, ten. Two are wild in Britain—*M. officinalis* and *M. alba*. A third, *M. arvensis*, is an escape. A decoction of the first is emollient, and sometimes used on the Continent in lotions and enemas. The second produces swelling in the belly of cattle which graze upon it.

"The flowers of *M. cœrulea* are used to give the peculiar odor and flavor to Schabzieger cheese made in Switzerland, and more particularly in Glarus; the plant is said to be a styptic.

"The seed of *M. parviflora* is useful in diarrhea, especially of infants; the plant is esteemed in India as forming good pasture for milch cattle."

M. officinalis is the common melilot. *M. arvensis* is the field melilot, and *M. parviflora* the many-flowered melilot. *M. officinalis* (yellow flower) is the only one of the list officinally recognized by the chemists as of great medicinal value. The word common, when used in a botanical sense, becomes the distinguishing name of some the best-known varieties of plants.

A word now in regard to the name bokhara. No reason seems to be assigned for the word. If, as you and others assert, it means hulled seed of *M. alba*, why not with equal reason call hulled seed of any of the clovers bokhara? In my opinion it is a local term only, and about as misleading and incorrect as the name heartsease when applied to a polygonum. These things serve but one purpose, and that a bad one—to befog the average reader.

Again, Mr. Root, you ask, "Why, if the yellow and white sweet clovers are not the same, do we find stalks of the yellow growing among the white?" Either of several agencies may have effected this. First, by the bees carrying pollen; second, by the wind; third, by a few stray seeds becoming mixed with a bulk of the white. Seed mixtures will take place sometimes, careful as we may try to be.

MRS. L. E. R. LAMBRIGGER.
Niobrara, Neb.

[In regard to the term "bokhara," it is used in various catalogs, and by wholesale seedsmen. In a circular just at hand from Johnson &

Stokes, of Philadelphia, among their grass seeds and clovers they designate it as follows: "Bokhara clover (*Melilotus leucantha*)." Now, this seed that they name in this way is always hulled. When father Langstroth first called my attention to it as a honey plant he called it *Melilotus leucantha*.

If we quote one of the names, a good many people will not know what it is; therefore we have mentioned both names, just as we do when we say "basswood, or linden trees;" and even then a good many of our customers will say, "Send me half a dozen each of basswood and linden trees," thinking there are two kinds. If somebody could invent a way of getting rid of so many names for one and the same thing, it would be a wonderful help all along the line.—ED.]

SWEET CLOVER, WHITE AND YELLOW—ARE THEY THE SAME?

On page 255, in speaking of yellow and white sweet clover, you say, "My experience is that the color of the blossoms indicates no difference at all in the plant." As our little girl would say, you make a "mistaken" if you think that it is one and the same plant. On dumping-ground in Peoria, Ill., I have seen a sheet of gold on this plant a full month before a blossom appeared upon the white. The leaves and stalks are finer and more abundant, making better hay, and curing more readily, and not so woody as the white. The white variety grows taller than the yellow.

On my return from St. Andrews Bay, Fla., Apr. 13, every colony of bees answered to roll-call, and most of them were populous. They are busy carrying water to-day.

A good crop of honey has been secured in that part of Florida, from the ti-ti bloom. The country is fast recovering from the disastrous freeze of two years ago. A few orange-trees bloomed and set fruit. MRS. L. HARRISON.

Peoria, Ill., Apr. 19.

MORE ABOUT SWEET CLOVER, WHITE AND YELLOW, ETC.

I do not think white and yellow sweet clover are identical, judging from the manner it grows here. Although its manner of growth is similar, the yellow is considered to be not as good for producing nectar as the white. Here in Albany Co. we have both kinds, although we have the white in greater profusion. I notice each kind generally isolated; that is, there will be patches of each in different places, showing that each perpetuates its own kind. Where they grow near each other the seeds may have been mixed, which would account for an occasional stem of yellow growing among the white, as remarked on page 255.

Is sweet clover of value, both green and dry, as feed for stock? Stock refuse to eat it green when growing in pasture fields. When pasture fails they will eat it green. Cut and cured before stalks get woody, say when blossom-buds appear, stock will eat it in winter, and it makes excellent fodder. Sweet clover will perpetuate only where no cultivation is done. Plowed under before it ripens its seed, it is as easily eradicated as any other clover.

So. Bethlehem, N. Y. G. J. FLANSBURGH.

THE TWO KINDS OF SWEET CLOVER—YELLOW AND WHITE.

I know of a kind growing on the streets of Beatrice, Neb., that is distinctly a yellow, and does not grow so rank or tall as the white variety, which also grows along the roadside around the same town. This yellow variety is much earlier to bloom, but you can not tell one from the other before the bloom starts to open I am told that this yellow kind was sown by a German bee-keeper several years ago, and it is believed he either brought or had them sent from Europe for that purpose.

Steinauer, Neb. CHAS. J. HARRIS.

SWEET CLOVER FOR STOCK.

In regard to sweet clover, I find that stock eat it as readily as alfalfa, and I have noticed my horses leave their corn to bite a choice tidbit that happened in their prairie hay. I also notice that there is no sweet clover growing in the pastures, but it is coming in rapidly along the roads and hay land. I think persons sowing it should put it in a field by itself rather than along the road. B. G. SOWLE.

Kearney, Neb., Apr. 10.

IN KANSAS, STOCK EAT RIGHT DOWN INTO THE GROUND TO GET IT.

Is it not very strange that some people's stock will not eat sweet clover, green or dried? My horses and cattle are running on a piece this early in April, and they eat right into the ground to get it, and yet they are well fed; but stock that have never been used to it will not eat it at first sight. JOSEPH SHAW.

Strong City, Kan., Apr. 10.

IN NEBRASKA THEY LEARN TO EAT IT DURING A DRY YEAR.

Out in Western Iowa the lanes were full of sweet clover until we had a very dry year; and the stock, in driving them to pasture, got to eating it, and seemed to like it as well as any thing they can get since. E. W. MOREHOUSE.

Sutherland, Nebr., Apr. 7.

CASES, SECTIONS, AND BEE-RANGE.

EXTRACTED-HONEY CASES.

By W. A. H. Gilstrap.

I am interested in the article on shipping honey, p. 232. I don't know how it is done, but somehow the Southern Pacific can smash cases holding two new 60-lb. cans of extracted honey, when well-nailed coal-oil cases are used. With a partition between the cans I have never known an accident. A firm in Boston once wrote me that it was unsafe to ship honey without partition, and my experience corroborates the statement. I believe the damage here is done by cars bumping together. Care in packing, shipping, and selling is just as important as in producing. We should get the cheapest package possible, to be *sure* it will entirely accomplish the purpose for which it is intended.

THIN SECTIONS.

Nothing should be considered settled until it is settled right. I have heard the integrity of GLEANINGS seriously questioned when edited by its founder because of its persistently claiming, as an advantage of light-weight sections, that they would be bought by many on account of their cheapness. GLEANINGS is evidently honest about it, but is certainly mistaken, at least in this country.

When I see comb honey in a store I generally ask the price. Next I ask the weight of a section. The salesman calls it a "pound," or "about a pound." If I know it is light I tell him so. If he is honest he weighs some; if he knows it is light he prefers evading the point, or changing the subject. I have never found the light-weight sections selling for less price than full-weight, in a single case. Who has? Ordinary customers see a 4¼x4¼ section, and consider it "a pound," "about a pound," or "nearly a pound," and far the most take the former position. If we use thin sections, let us change their rim measure.

J. F. Flory, of Lemoore, Cal., who has probably changed his hives, sections, frames, etc., more than any other man west of New York, has been using a 4¼x5¼x1⅛ section, without separators, for three or four years, and says it weighs a pound. Some call it Flory's big section, and it does look big. About half a dozen men who run the smaller part of their bees to comb honey use it. You can show one to a customer, and call it a pound, with a clear conscience; he is pleased with it, and buys sooner than he will with a 4¼x4¼ of the same weight. I use the standard, honest, 16-ounce avoirdupoise-pound section because it is more convenient, and shippers would rather buy it.

Mr. Flory claims that bees will build a comb from a "starter," fill with honey, and seal it, before they will fill and seal combs on each side of it, such combs to be placed 1⅛ inches apart. From this he argues in favor of thin sections being built sooner, as well as looking better. The experiment is worth trying.

BEE-RANGE.

On page 240 it seems Borodino bees do profitable work from four to eight miles. I am thoroughly convinced that bees owned by C. M. Davis, of Selma, Cal., gathered considerable camphor-weed honey, which grew within three miles of my bees, while my bees could not nearly make a living. The ground intervening was rough, but no great heights or winds forbade the free passage of bees. If that was an exceptional case we should all know it, as it seems to me a very important question, how far bees can work to best advantage.

Caruthers, Cal., Apr. 20.

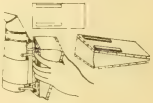
CLEATS ON BELLOWS TO BEE-SMOKERS.

PRACTICAL SUGGESTION FROM A BEE-KEEPER OF A THOUSAND COLONIES.

By W. L. Coggshall.

I sometimes know a good thing when I see it. Here is one of the best little things, that I discovered some time ago, and it costs only a little time.

Take one side of a section (or a honey-box), and with a knife cut it into four equal parts lengthwise, and, with some very small tacks, tack them on the edge of your smokers where you take hold, like this, on both sides, and then see how much easier you can handle the smoker and not drop it. The action of the hand in opening and shutting a heavy smoker renders you liable to drop it.



The best fuel that I ever used for a smoker is burlap phosphate-sacks, or gum bags. They can be had very cheaply at junk-shops. I roll them up, not too tightly nor too loosely, so they fit the smoker. I light one end, and lay a stick by the side of the burlap, when I put it into the smoker for draft.

A smoker filled in that way will last three or four hours, with light work at bees. There are no sparks, and no danger of fire.

Bees wintered well, 2 per cent loss. My honey is nearly all closed out—78,000 lbs. We shall have about 1000 colonies this season.

I think it would be to your advantage to call on me next August. I extend you an invitation.

West Groton, N. Y., March 26.

[One of our men, a couple of years ago, in the apiary, I noticed, was using cleats on his smoker-bellows; and on trying them I noticed that they afforded a much better "grip" for the hand. I am not sure but it would be a good plan to put them on all the bellows of our higher-priced smokers; but instead of using cleats we would groove the boards on each side so as to leave a molded edge that would look better, and feel more comfortable to the fingers. We will have a lot made soon, and later on send a smoker having this feature to Mr. Coggshall, "with our compliments." In the mean time those who already have the plain bellows-board can very easily fix them in the manner suggested.

It was Mr. Crane, of smoker fame, who first suggested to us a smoker fuel similar to the gum sacks. He uses, or did use, old propolized cloths or quilts that had been used over the frames. We tried some of this, and found it to be an excellent fuel.

Thanks for your invitation. I have concluded to accept it, and at the same time call upon other bee keepers of your State. It was seven years ago that I visited bee-keepers of your State, and at your kindly hint I am in hopes to repeat that trip in part.—A. I. R.]

APIS DORSATA.

WHY THE CONVENTION DID NOT INDORSE THE PROJECT TO GET THEM.

By W. C. Frazier.

This question has been asked on an average of once every two weeks since the convention; and while many good reasons have been given, still the inquirers do not seem to be satisfied, and think there is some selfish motive behind it that prevented the indorsement. *Nothing of the kind existed.* Now, I am something of a bee-importer myself, and am aware that *if Apis dorsata* would prove only half as good as it has been painted, the man who succeeds in introducing it could carve his name above that of Dzierzon, Berlepsch, or our own father Langstroth. He would not only be respected and honored, but he might make a snug little fortune out of it. Now, I, or half a dozen others whom I could mention, who understand the business, and have had some experience in importing, could lay down at our own apiaries 12 of these queens at a cost not exceeding one hundred dollars for the dozen; and the man who furnished them, the one who gave them a rest in Europe, before crossing the Atlantic, and the express companies that handled them, would all get a satisfactory equivalent for their labor and care.

Now, what's to hinder some one sending for a consignment? It is not the want of means, as that could be secured, even if the one wanting to send did not have the money himself. It's simply the lack of queens. This bee has been known as the giant bee of India or Ceylon, or somewhere else. Now, before the government or any one else undertakes to send for it, would it not be well to locate it? India or Ceylon is rather indefinite. I might say there is gold in South Africa or in Alaska, or even in the United States; but it would require considerable panning to locate it on such meager information. There are Englishmen all over India; and if this race of bees could be domesticated it seems rather strange that some of them have not tried their hand at it. Englishmen usually have an eye to what will pay them, quite as much as we Americans.

These matters were talked over to some extent by a few of us at Lincoln; and the way the thing now stands, I should not feel like investing any of my money in the uncertain venture of trying to get them, and I don't think at present the government could be induced to with the meager information at hand; and should any one *anywhere* succeed in domesticating them, and have queens to dispose of, there would be no necessity for the government to step in, as some of us would have an order in for them before he could get his papers and his trunk packed.

If any one will take the trouble to look over the reported honey yields given at the Lincoln convention by those present, many receiving from 100 to 450 lbs. per colony, he will readily see why *Apis dorsata* did not create more enthusiasm. *Sensible men let well enough alone.* Most people would be satisfied with such bees, and would only want a few more of them. At some future convention, where the honey yield has been a failure, they will perhaps highly indorse them.

Now, lest I be misunderstood I want to say that, personally, I have not the slightest objection to the government's sending after them; and there never was a time when there was a Secretary of Agriculture who would give such a proposition more attention than we have at present, and it would not be necessary to explain to him that there is such a pursuit as bee-keeping. But if such a petition is presented, if you want to succeed, get things in shape and locate the bees first.

Atlantic, Ia.

[This was written before the editorial appeared on page 339 in May 1st issue. I had not seen his manuscript when I wrote the editorial in question. It will be seen that our thoughts run much in the same line.—Ed.]

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

MULTIPLICATION OF COLONIES.

Question.—I have purchased some bees, and wish to increase them. Is there any way of multiplying colonies, except by swarming, as the bees conduct this, for increase? I must be from home from 8 A. M. to 4 P. M. each day, except Sundays; and if there were any way to multiply my colonies except by natural swarming it would be much more convenient for me. Please tell us something about this in your department in GLEANINGS.

Answer.—The multiplication of colonies of bees, outside of natural swarming, is something that is as old as the most ancient of the things about bee-keeping. In the latter part of the seventeenth century, Swammerdam told of a bee-keeper who knew the art of producing queen-bees at pleasure, and who secured four times as many colonies annually as were usually obtained; and in 1762 Grewell gave directions for making artificial swarms and dividing colonies. Others announced previously to the nineteenth century, that bees were able to raise a queen from worker brood, which fact was then known to only a few. But as the hives then in use were ill adapted to artificial increase; and as many facts having an important bearing in the matter were then unknown, the practice seems to have met with little success. When Huber partially developed the movable-comb system, and made important discoveries in the physiology of the bee, a greater success in artificial swarming was attained; still, it was seldom practiced successfully, even then, except by the most expert and well-informed apiarists. It would be well for the readers to consult our books on bee culture before undertaking artificial increase to any great extent; for in the most of them this subject is discussed quite extensively, and at greater length than would come in the space allotted to this department.

Artificial swarming is based on the following facts: First, a queen and some workers, 500 or more, constitute a swarm or colony of bees, capable of carrying on all the labors of the hive. Necessity for drones comes only in case of young unfertile queens. Second, worker bees, without a queen, can rear a queen if they are furnished with a comb containing eggs or larvæ under three days old. Third, a part of the bees of any colony, unless too small, may be taken from the hive, with or without the queen, without disorganizing the others. Fourth, a part or all of the comb may be taken, with its contents, from a colony of bees without destroying them, as they will immediately go to work to replace it, if fed, when honey is not coming from the fields. Fifth, queens can be reared in any desirable number by taking the queen away from any populous colony or colonies, according to the number desired; and, when nearly mature, they can be given to the queenless part of any division made.

These facts, while they form the basis for artificial swarming, are subject to many qualifying conditions; and a knowledge of them alone would not enable a novice to multiply his colonies to the best advantage. But a thorough knowledge of the economy of the hive, and of the habits and peculiarities of its inmates, coupled with the above, will, with a person of ordinary ability, give success in proportion to the energy and perseverance of the person undertaking the matter.

The greatest and most damaging error that nearly all beginners fall into is an inclination to overdo the matter. After getting started they generally "swarm" their bees to death, as the multiplying seems so easy during the honey-flow, and they find themselves in possession of a great number of weak colonies, with few stores, when winter arrives, only to drag out a miserable existence for a little while, or die of spring dwindling before settled warm weather arrives.

Another error, in the average locality, is almost as bad as the above, which is, putting off the multiplying of colonies till too late in the season. No definite time can be given, as much depends upon the season and locality; but it is well to do it as early as you can. In the Northern States it can generally be done with safety from the 10th to the 25th of June, and in the Southern States from one to two months earlier, according to latitude. The only safe guide is the condition of the colonies to be operated on. The hives should be well filled with brood and bees, and honey coming in from the fields, to have the proper conditions exist. This will often occur from two weeks to a month before natural swarming would take place. The parent colony, as also a swarm made at that time, will, by the time when honey becomes abundant, be filled with comb and brood, and ready to take advantage of the honey harvest by storing a nice surplus; while, if left till later, each part would have all this work to do at the most important period of the year. Two or three weeks, thus saved, frequently amounts to the difference between an excellent yield of honey and not enough to pay expenses. Many colonies of bees will not come into proper condition for dividing when the more advanced are ripe for the operation, on account of all not coming through the winter in equally good condition, having old or failing queens, etc. Such colonies may be united with others, after destroying old queens; or if the queen is vigorous, a frame of hatching brood may be given from one of the most prosperous colonies, as soon as the weather becomes warm enough so there is no danger of the brood perishing on account of too few bees to care for it properly. Having the colonies in proper condition, it is well to decide whether a great increase of bees is desired or a good crop of honey. Both can not be secured at the same time. If we are satisfied with doubling our colonies, and do that in time, a fairly good yield of honey can be expected in most localities; but a greater increase can not be ventured upon without a great sacrifice of honey, often to the exclusion of the whole crop. As I have given, in a recent issue of GLEANINGS, different plans for dividing colonies, I will not attempt to touch on that matter here. This reply has been written from a comb-honey standpoint.

Heads of Grain
FROM DIFFERENT FIELDS

HONEY-JUMBLES WITHOUT SUGAR OR MOLASSES.

I will give you a recipe for making honey-cookies or cake, that does not need sugar or syrup. It is one of my own devising. I kept on trying for over four years, ever since we went into the bee business, and I think I have found one that can be relied on, either for cake or cookies. You can try it, and if it works all right with you, let your neighbors try it. You can make it richer if you like by using clabbered cream instead of buttermilk. Bake in a rather slow oven, as it burns very easily. I hope it will work as well with you as it did with me. To make the cookies, use a little more flour, so that they will roll out well without sticking to the board. Any kind of flavoring will do. I use ground orange-peel mixed soft. It makes a very nice ginger bread.

Terminous, Cal. **Maria Fraser.**

[It seems the honey-jumble recipes, and, in fact, Dr. Miller's leaflet on the food value of honey, came out when I was in Arizona; and after what the leaflet has to say of the advantages honey has over sugar from a sanitary point of view, I was somewhat surprised to see Dr. Miller—yes, Dr. Miller *himself*—(who wrote the leaflet) advising us to put *sugar* and *molasses* in *honey-jumbles!* Well, our good friend who writes the above has demonstrated, at least to the satisfaction of all Rootville, that honey-jumbles, made entirely of *honey*, are away ahead of any made with sugar or cane molasses, and, in fact, I might have known they would be. This honey-cake is not only the nicest cake I ever ate, but I can eat it without any trouble, which is more than I can say for some of the recipes given last winter, where they use not only cane sugar, but cheap molasses, and, worst of all, *lard*. Just think of it—recommending *lard* for *honey*-jumbles! yes, and nobody even protested.—A. I. R.]

THE HOWELL HONEY-CAKE (IT IS A HARD CAKE).

Take 6 lbs. flour, 3 lbs. honey, 1½ lbs. sugar, 1½ lbs. butter, 6 eggs, ½ oz. saleratus; ginger to your taste.

DIRECTIONS FOR MIXING.

Have the flour in a pan or tray. Pack a cavity in the center. Beat the honey and yolks of eggs together well. Beat the butter and sugar to cream, and put into the cavity in the flour; then add the honey and yolks of the eggs. Mix well with the hand, adding a little at a time, during the mixing, the ½ oz. saleratus dissolved in boiling water until it is all in. Add the ginger, and finally add the whites of the 6 eggs, well beaten. Mix well with the hand to a smooth dough. Divide the dough into 7 equal parts, and roll out like gingerbread. Bake in ordinary square pans made for pies, from 10x14 tin. After putting into the pans, mark off the top in ½-inch strips with something sharp. Bake an hour in a moderate oven. Be careful not to burn, but bake well. Dissolve sugar to glaze over top of cake. To keep the cake, stand on end in an oak tub, tin can, or stone crock—crock is best. Stand the cards up so the flat sides will not touch each other. Cover tight. Keep in a cool dry place. Don't use until three months old at least. The cake improves with age, and will keep good as long as you will let it. I find any cake sweetened with honey does not dry out like sugar or molasses cake, and age improves or develops the honey flavor.

New Hampton, N. Y. **E. D. Howell.**

WEIGHTS OF 1⅞ SECTIONS.

Weights of filled sections, as taken from sales book of last fall. Those cases that held out weight best were clover honey; the lighter, buckwheat.

40	sections	36	lbs.	40	sections,	34	lbs.
24	"	20	"	40	"	37	"
24	"	24	"	40	"	38	"
20	"	17	"	40	"	41½	"
40	"	40	"	20	"	18½	"
20	"	19	"	24	"	24½	"
20	"	19	"	20	"	19	"
20	"	18	"	40	"	38	"
40	"	40	"	40	"	38	"
24	"	22	"	20	"	19	"
200	"	170	"	Buckwheat.			
40	"	33	"	"			
12	"	12	"	White.			

I use 4¼x4¼x1⅞ sections, with slotted separators. You will find by figuring that they average very nearly 15 oz. The above figures were taken just as they appear on our book—no skipping about. **R. A. Tobey.**

Caton, N. Y.

AN UNUSUAL EFFECT OF BEE-STINGS.

I have read a good deal about bee-stings curing rheumatism, and affecting people in different ways; but I have read of none who say bee-stings affect them as they do me. I have handled bees since I was a child, or about nine years, and have been stung frequently, as all bee-keepers are, and until the last two years the stings did not affect me a particle; but now if am stung on the hands my eyes will become inflamed and swollen. It doesn't seem to make any difference as to the part of the body I am stung, it seems to settle in my eyes. It seems to affect my eyes more if stung several times on the hands. Perhaps the very idea of the bee-stings affecting my eyes may seem ridiculous to some of the more experienced bee-keepers. I can't claim experience only as to the bee-stings, for I am one of the few girl bee-keepers.

This is the second year I have kept the bees although I have worked with them a little for eight years. I always thought any one was a bee-keeper who owned a few hives of bees.

Luvercia Beebe.

Rocky Comfort, Ark., Apr. 2.

[While your experience is a little bit unusual I have known quite a number of instances where persons were affected in the same way. In your case I would advise you to veil yourself very closely, and perhaps wear gloves. At the same time, be very careful about approaching the bees when they have the least tendency to be cross, after a rain or during a time of robbing. As you say you have the A B C book, I would advise you to read the subject of "Bee-stings," especially that item concerning jerking the hands back.

You need especially to have a good smoker. If you have the bees thoroughly smoked, if disposed to be cross, you will be able to avoid stings almost entirely; in fact, the writer goes through the season with very few stings. We use exclusively in our apiary the pure Italian leather-colored stock, not the five banded bees. They are apt to be more or less cross. I am careful to make slow motions immediately over the open hive, and very often work day after day without a single sting. There is no good reason why any one should be stung from six to eight times a day.—ED.]

BUILDING COMB ON WIRE WITHOUT FOUNDATION, A LA BOARDMAN.

I have been somewhat interested in the advancement of apiculture for the past twenty years, and am not a little surprised at reading H. R. Boardman's article on page 160, March 1. I had supposed that the most of the bee-keepers of to-day were using wired frames. As far back as 1880, when I lived in Wisconsin, we wired all of our frames, using two wires horizontally across the frame, but we found it was difficult to get them taut enough without springing the bottom-bar; and to obviate this we substituted a strip of wood, about ⅛ inch thick, horizontally across the frame; but this took up too much room. We now use wire, and find the bees build more readily on them than they do without. We use about an inch of foundation for a starter, and we get as fine combs as one would wish to see. We have 1000 frames wired, and ready to be filled with comb. This season we put our wire lengthwise of the frames, running it from the end of the top-bar to the end of the bottom-bar on the opposite end of the frame, using two wires running in opposite directions, and we find it stays the frames, and the bees take readily to it. We use No. 24 wire, but I think 26 or 28 would be better, perhaps 30. In this climate, when the mercury registers 120 we find that new comb is pretty apt to fall down when it is full of brood and honey; whereas if it is wired it would have to melt before it would fall, and the wire does not seem to interfere with brood-rearing in the brood-nest.

Now, Mr. Root, perhaps I am behind the times; but it sometimes seems to me, when I am reading GLEANINGS and some of the other journals (for I read every thing I see that says b's b's b's) that there are others who are behind the times a little as well as my unworthy self. M. H. DUNN.

Fullerton, Cal., Mar. 10.

FASTENING FOUNDATION TO THE TOP AND SIDES IN SECTIONS AS A REMEDY FOR ONE-SIDED COMBS.

I see in GLEANINGS there is considerable discussion about comb honey being stuck fast to the separators, making a one sided comb. I don't see how the foundation could swing to one side if it is fastened to the top and both sides. I use full sheets in sections, and fasten to the top and sides with melted beeswax, and never have any such trouble.

Perhaps these large bee-keepers use foundation fastened to the top only. This, I think, is a very poor way. One will find that most one-sided combs come by the foundation swinging to one side by a jar in handling the supers before they are put on the hive. That has been my experience. EDWIN RICKARD.

Schoharie, N. Y.

THE NEW DRAWN FOUNDATION; IS THERE DANGER THAT IT WILL REDUCE THE PRICE OF COMB HONEY?

Your samples of deep-cell foundation came to hand perfect. I congratulate you on your success. It is a veritable triumph of mechanical skill, and will doubtess prove the same as a business enterprise. There are some questions in connection with it that have not been mentioned in the bee-journals so far, and which time only may determine. For instance, will it increase our output without lowering the price? WM. RUSSELL.

Minnehaha Falls, Minn., Apr. 24.

[I think there can be no question but that the new product will enable the bee-keeper to produce more and better comb honey—more, because the bees will enter the sections quicker, and better because the sections will be better filled out. It may possibly reduce the price; but I hardly think so, because the price is already too low to leave much of a margin. The effect will be to make more profit, and the better-filled combs will tend to increase the price if any thing.—ED.]

FLIGHT OF BEES FOR HONEY.

Please tell me how I can get my bees to go about 2½ miles where there is abundance of poison oak that affords quite an amount of bee-pasture, and do not wish to remove the hives there. W. C. MYER.

Ashland, Or.

[I can not imagine why you should desire your bees to find pasturage on the poison oak. If the tree is poisonous in its character there will be a great liability of its affecting the honey, rendering it a source of danger to bees as well as human beings. Usually bees will not fly over a mile and a half; but they have been known to go not only two miles and a half, but even five and ten miles; but the latter distance was across a body of water. Such cases as these are exceedingly rare. Our bees have gone two miles and a half; but when the honey flora gave out within a mile or a mile and a half they extended the distance a little further until they reached the distance named. You can generally set it down as a rule that, when bees find plenty of forage within a mile and a half, they will not go further.—ED.]

I have a young queen a few days old. I see no drones nor drone-cells. What must I do in order to get her fertilized? D. L. PERINE.

Good Hope, W. V., Apr. 15.

[If there are other colonies in the vicinity, there will be no trouble about the queen mating. There are always a few scattering drones early in the season.—ED.]

HOW TO PRESERVE MEAT WITH HONEY.

After the pork is properly smoked, take pure honey (fall honey will do), and liquefy it if candied, and stir in enough finely ground black pepper to make it pretty thick; then with a cloth or a cheap new paint-brush rub this mixture all over and well into the meat; then hang in some cool dry place until wanted for use. A wheat-granery is a good place. Try this and see how sweet and nice the meat will be.

Nye, Ind. C. A. BUNCH.

BEGINNERS
QUESTION
BY E.R.
ROOT.

J. T. E., W. Va.—You can remove the outside frame, as you suggest, and put an empty comb in the center of the brood-nest profitably now.

J. B., Minn.—Bees sometimes gather maple sap; but as the conditions favorable to the flow of sap are not generally favorable to the flight of bees, very little sap is gathered in this way. The bees may gather honey from flax-blossoms. They will gather nectar from almost any flowers in some seasons.

L. T., Ont.—If your neighbors' bees rob yours it indicates that your colonies are weak or your entrances are too large. Contract the entrances down so that only one bee can pass at a time; and as the colony increases in strength, enlarge the entrance. For particulars, see "Robbing," in our A B C book.

J. M. S., Cal.—To get rid of ants, find the nest; and, with a crowbar, or stout pick, make a hole in the center of the nest about a foot deep. Then pour into it about five cents' worth of bisulphide of carbon, and stop the hole up tight at the top. This will kill all the ants. For further particulars, see "Ants," in our A B C of Bee Culture.

M. E. S., Fla.—It is very seldom that the bees show a disinclination to go through a bee-escape. Sometimes it may be advisable to give them a little start with smoke. After they get started going through they will pass into the brood-nest below with a rush. Of course, if the queen or brood should happen to be above in the sections, that of itself would have a tendency to hold the bees above.

R. L. S., Kan.—The idea that bees will injure alfalfa is perfectly ridiculous. It is well known by all those who know any thing about the fertilization of flowers that bees, so far from doing any damage, are a positive benefit. We send you a pamphlet on "Bees and Fruit" that ought to settle the matter. If you hand it to your neighbor we think it will convince him—that is, if he is open to conviction.

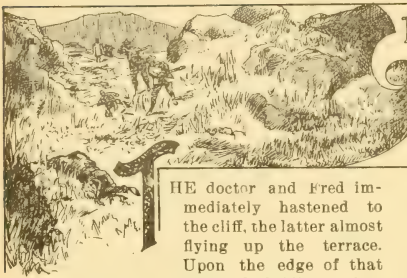
A. R. D., Oregon.—In your climate you can probably introduce queens at any time now. The royal jelly referred to is a milky food that is found in queen-cells. It is usually dipped out by means of a tiny wooden spoon, so to speak, and deposited in cell-cups along with the egg from which the queen is to be reared.

W. H. W., Ky.—The first thing to do is to determine whether your hive is queenless. In order to do this, put in a frame of unsealed larvæ or eggs from one of your other colonies; and if the bees build queen-cells then you may know absolutely that they are queenless. If you have no other colony from which you can get eggs or larvæ, then look through the hive two or three times very carefully, and see if you can see the queen. If you do not find her, it might pay you to send and get a queen.

J. D. W., Md.—It is true that we speak of sending larvæ by mail for the purpose of rearing queens; but it is not practicable to have them go any great distance—in fact, out of our own State; and even when sent to points within the State, it has so often proved to be a failure that we have abandoned the practice. The price at which untested queens are sold makes it entirely unnecessary to send for larvæ and run the risk of raising queens. When you get an untested queen you get entirely new stock, and probably a queen that is fertilized by a pure drone.

D. L. P., W. Va.—We would advise you to put a frame of unsealed larvæ or eggs from one of your other colonies into the hive which you think is queenless. You can not always be positive, at this time of year, whether a colony is queenless or not; but by putting in the eggs or larvæ you can determine the point by noting whether they build queen-cells. Some drones will doubtless be flying by the time your young queen is ready to mate. If there is already a queen in the colony which you think is queenless, putting in the larvæ will do no harm, but good. If no cells are built you will know there is a queen in the colony.

W. G., Okla.—In answer to your question as to whether bees will clear their own hives of drones themselves, I would state that they will not do so until after the honey season. Just as soon as the honey-flow is stopped they will begin killing off their drones. The modern bee-keeper does not care to raise any drones unnecessarily, as they are consumers during the honey-flow. By the use of comb foundation there is nothing but worker-cells in the ordinary comb; and the consequence is, there are very few if any drones reared. It does not pay to keep drone comb in the hive. If there is any it should be cut out and replaced by worker. If the drones are already raised and in the hive you can catch them in the Alley drone-trap illustrated in our catalog.



BEE KEEPER FRED ANDERSON

OR

The Mystery of Crystal Mountain.

BY JOHN H. MARTIN

THE doctor and Fred immediately hastened to the cliff, the latter almost flying up the terrace. Upon the edge of that tract of obsidian points they found Alfaretta lying insensible if not dead. The donkey was, sure enough, dead; in his struggles upon those knife-like projections he was literally cut to pieces. Gimp had tried to rescue Alfaretta, but had sustained only severe cuts from those knife-like edges. Fred, more methodical, secured a club and broke down all intervening points; then, tenderly lifting Alfaretta in his arms, he carried her to a place of safety. When thrown from the donkey she struck the obsidian points in such a way as to break them off. Blood was flowing profusely, and the doctor ordered her to be borne to the cabin. A cot was sent for, and she was carefully carried down the terrace to her cabin.

The doctor, with the aid of the two squaws, made an examination of the wounds, and found nothing serious except that there was a piece of obsidian driven firmly into the skull in the parietal bone near the coronal suture.

The doctor explained to Fred that he dared not just now remove it; "for," said he, "there are certain conditions that may follow which may result in death. But how did this all happen? The donkeys have always kept at a proper distance from those places."

Gimp, whose wounds had been carefully bandaged by Sam, gave the following explanation: "Yer see, mister doctor, Alfaretta was a ridin' that ere donkey jest as proud as ef she was the queen of Sheber; and yer know that ere little queen-rearin' row of hives on the heeltrope terrace? Wal, the donkey tipped one over; the bees want much cross, but one stung the donkey's ear, and then he jest landed his heels right an' left, an' jest run over an' kicked over the hull row, includin' them big swarms in the center; then he seemed ter think that place out amongst the glass knives a good place to roll, and, accordin', he rolled; an', poor donkey! he'll never roll any more; an', what's more, I'm feared Alfaretta never'll ride any more. D'y' think, doctor, she'll die? Doctor, she's been gooder'n a sister ter me, even if they du say her mind has sprung off the hinges."

"Gimp," said the doctor, "I hope she will recover; and, though her life hangs by a slender thread, we must hope on."

Then, after pacing up and down before the cabin a few moments, he stopped, and, addressing Fred, said, "Fred, that piece of obsidian must be removed, even if death follows. Come with me."

Dr. Hayden prepared himself with the necessary accessories, and proceeded to perform the delicate operation. Fred was too excited to be of any aid; but the two squaws were stoical enough to correctly render the little aid the doctor required. The scalp was turned back from each side of the wound, and the piece of glass-like substance was carefully removed with a pair of pincers. A perceptible pallor came over the doctor's face at the crucial moment; but a little later an expression of surprise shone from his eyes; for, with the piece of obsidian, there came a piece of the skull about the size of a nickel. The doctor carefully laid this to one side and proceeded to dress the wound by first trepaning the skull. Alfaretta began to show signs of reviving under this operation, and a little chloroform was used to complete the operation. As soon as the scalp had been replaced and a few stitches taken, the doctor left his patient in the hands of the squaws; and, taking the small piece of skull in hand, went out to where Fred was anxiously waiting and pacing to and fro beneath the oak-tree.

"See here, Fred," said he, holding the little bone in his hand; "this piece of skull came away in the operation."

"But, doctor," said Fred, in deep anxiety, "what is to be the outcome?"

"Wait a moment and I will tell you," replied the doctor. "By a wonderful chance—no, I will say providence—this obsidian splinter penetrated Alfaretta's skull at the identical point where she was injured by the spar striking her head in San Pablo Bay. Now, see; this little bone, or granular formation, or bubble-like excrescence, protruded and crowded against the brain; and so wonderfully delicate is that organ that the least displacement of some portions of it causes trouble. In the case of Alfaretta it was so-called insanity. Now, furthermore, if I mistake not, when she revives she will be a sane, sensible young lady."

"Doctor, I am overjoyed at what you tell me. Alfaretta sane! I can hardly picture such a future; and to return her thus to her parents—or—or—excuse, me, doctor—to her foster parents."

"Yes," said the doctor, "it is hard for you to realize that she should be any other than Miss Buell; and whatever occurs, Fred, you must not hint to her my relationship to her; for if she does indeed recover, as I think she will, I wish to make all these matters known to her myself, and in my own way."

"Your admonition shall be respected," replied Fred.

"And, Fred, there is another thing which may seem strange to you; and upon this point I will give you warning. When Alfaretta returns to consciousness she will take up the events of her life where she left them in San Pablo Bay. Her life since that day will be a blank, and she will have no memory of you or any other person she has met since."

"Is it possible?" exclaimed Fred; "then I shall have to get acquainted with her as though she were a stranger."

"Yes, Fred; and if you have indulged in higher sentiments toward her you will have to renew them now to a sane person; and, if I mistake not, to win her will require talent. But, come; Alamantapola is calling, saying there is a change in the patient."

They both hastened to the cabin, and there was indeed a change. Alfaretta was sitting up in the cot. There was an intelligence in her every look as she surveyed the group around her.

"Where am I? oh! where am I?" and she grasped the clothing around her neck as if to loosen it for better breathing. "Where am I, and why am I left with these strange people? Where are my parents? Where are Mary, Fanny, and William? Were my companions drowned? Oh! that terrible moment! Oh! where am I? Take me to my home, to mother and to father!"

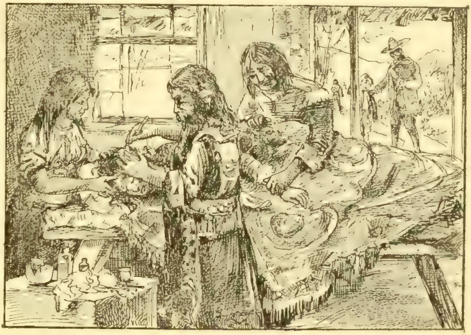
"There, there!" said the doctor, soothingly, as he observed her excitement. "You are with friends, and many strange things have happened to you since the boat was capsized. Your parents and friends are well, and you shall see them all in good time; but now you are weak, and must rest."

The doctor and Fred again left the cabin, the doctor giving Alamantapola and the other squaw instructions respecting the patient.

"That seems strange," said Fred. "After following me, and taking such an interest in finding me, she does not know me." And Fred (so inconsistent is human nature) began to wish she were insane again.

Alfaretta began to regain strength, and, after many days' confinement to the cabin and to the tender care of Alamantapola, she was permitted to take short walks under the oaks. A hammock had been slung in a convenient place, and many hours she sat here, either reading or in revery. Her appeals to those around her to know about her people, and why they were not with her, were put off under one pretext and another, but all bearing upon the point that she was not strong enough.

"Why, Fred," said the doctor, "the revelation that we have to make to her will require all of her strength; in her weakened condition it might prostrate her again; but now in a few days I think she can bear it, and you can break the matter to her as you see fit."



"THE DOCTOR PROCEEDED TO DRESS THE WOUND."

And so it came to pass that, one day while Alfaretta was sitting under the oak-tree, Fred sat down near her, and said:

"Miss Buell, it seems that you have no remembrance of meeting me previously to seeing me in this valley?"

"No, Mr. Anderson, I have no recollection of meeting you."

"Do you remember living upon the Sacramento River?" said Fred: "and do you remember seeing a bee-ranch on the bluff, where I produced a nice lot of honey? and then do you remember the fearful flood that washed my bees, Mat Hogan, and myself down the river? and do you remember helping to rescue me, and"—

"Why, Mr. Anderson," interrupted Alfaretta, "what a fantastic story you are telling me! I lived in Berkely with my parents; and, Mr. Anderson, you must have some other person in your mind; and," said she, with a little laugh, "you are a romancer indeed."

"Now, Miss Buell," said Fred, "if you will tell me the date of the accident in San Pablo Bay I will try to reveal what seems a mystery to you, and why you are not with your parents."

"Let me think," said she: "vacation—ah, yes! it was the 25th of September."

"What year?" asked Fred.

"Why, what a question, Mr. Anderson! you are so puzzling!—this year, of course, 1887."

"WHERE HAVE THOSE FIVE YEARS GONE?"

"Now, Miss Buell, you must not be surprised; but look at this almanac."

"What!—1892!" she said, slowly; "impossible, sir," said she, severely; "are you deceiving me?"

"How can that be, Miss Buell, when this almanac speaks for itself? Take it and look it over thoroughly. You observe there can be no deception, but—"

"Five years! five years! O sir, how strange! how very strange! Am I dreaming? am I sane?" And she gave way to tears, and, looking at the almanac again, she said, brokenly, "Where have those five years gone?"

"Miss Buell, you surely are now in your right mind; but for five years and a half you have been mildly insane."

Then Fred told her the story of the past five years, as far as he knew it, and all the incidents in which she had taken an active part, and finally the cause of her recovery. She said not a word during the recital, but sat in a stupor of bewilderment.

"So strange!" said she, finally. "My poor dear mamma!" said she; "how she must have suffered all these years! Let me go to her—let me go now."

"You shall go in good time," said Fred; "but Dr. Hayden thinks you are not strong enough to take the journey."

"Hayden! Hayden!" said Alfaretta. "Hayden! why! papa had a cousin by that name; but he was killed in South America several years ago."

"That was a false report," said Fred; "this Dr. Hayden is your kinsman, and you are in safe hands. Be patient; all will be well. Remember there is a providence in all this. There is a divinity that shapes our ends, rough hew them as we may."

PREPARING COMB HONEY FOR SHIPMENT; EXCELLENT SUGGESTIONS.

In regard to shipping honey, are there not a few things to be observed by the shippers that have not been mentioned? One is to mark crates, requesting them to be loaded lengthwise of the car, so the jar will come against the edge of the combs. Another is, when using small crates nail two or more together so they can not be tossed from one man to another. There is more freight injured in this than in any other way while being handled. A box of a convenient shape, weighing less than 50 lbs., is frequently tossed by local freight men. They are paid by the trip, while men at regular transfer stations are paid by the day, and are not in such haste, consequently do but very little damage to freight. Trainmen are expected to use particular care to avoid damage to goods or property, and frequent occurrences of the same are regarded as incompetency on their part; but they are obliged to judge principally from the damage to property, for they can not find out so well about goods.

Reynoldsville, Pa. A. M. APPLEGATE.

DISCOURAGING FOR FLORIDA.

Prospects here are for an almost absolute failure of this season's honey crop. Bees are in splendid condition, but the saw-palmetto is putting on not much over a tenth as much bloom as usual. O. O. POPPLETON.

Stuart, Florida, April 7.

By ER Root

Editorial

Wisconsin now has a good foul-brood law, and N. E. France, of Platteville, Wis., is inspector. It goes without saying that foul brood will be cleaned out of Wisconsin, root and branch.

In our last issue, page 340, we inadvertently said that anywhere from $5000 to $10,000 worth of queens was sold in a single season in this *county* alone. Of course, the general reader will understand that we meant *country.*

We are having a large amount of fruit-bloom, heavy rains, and lots of brood-rearing. In our locality it looks as if the season would be two or three weeks backward. Brood-rearing having started a little later than usual, we shall hope that basswood and clover will come on a little later.

I can not see why there should be any acrimony shown over the fact that the new organization, the United States Bee-keepers' Union, has a name similar to the National Bee-keepers' Union. As every one knows, when the constitution was drawn up it was with the idea of amalgamation. As that was voted down by the old organization, the new one had to go under the name proposed for the two amalgamated societies. Just as soon as there can be a meeting I do not think there will be any question but that the name will be changed; and, by the way, I do not see that there needs to be any feeling of rivalry between the two Unions. They have separate lines of work, and to a large extent the members of one society belong to the other.

THE CHARACTER OF COMB FROM DRAWN FOUNDATION.

We are constantly experimenting with and testing the new drawn foundation. The results of the former experiments have been confirmed in every case; namely, that the bees accept the new product immediately, no matter whether honey is coming in or not. In cases where ordinary foundation is gnawed into, the new drawn article is accepted at once. We placed a sample of it in the center of the brood-nest, between two dark combs. In a day or two its *whole character* was completely changed. Instead of being of a pearly, transparent, polished white, as it leaves the dies, it assumed a dingy-yellow, opaque, roughened appearance, like the comb around it. The surface of the walls had been completely worked over, so they were as thin as natural. There can be no question about its utility in the hive; and its "character" is made to conform almost identically to comb made wholly by the bees. Except for the flat base, which the bees do not change, the fully completed comb, empty, could not be distinguished from the natural-built comb made by the bees without even the use of foundation.

WORK FOR THE NEW UNION; PURE FOOD LAWS IN EVERY STATE.

The Board of Directors of the new Union, if I am not very much mistaken, will recommend that the organization devote its attention to the enactment of pure-food laws in every State of the Union. Of course, this work can not be done in a day nor in a year, and perhaps not in several years, and in some States, perhaps, never. It has been recommended that the organization commence first with Illinois. In that State, more than in any other, there is need of just such a law, as Chicago now seems to be the center of glucose-mixing. If the U. S. Bee-keepers' Union were to send C. P. Dadant and J. A. Stone to Springfield, to buttonhole the members of the Illinois Legislature, there might be a good prospect of a law being enacted in our favor. Both of the bee-keepers mentioned are strong and influential men, and I believe that Dadant, as a lobbyist, can stick and hang like a tiger.

The salutary effect of a pure-food law in Illinois would have its immediate effect in Chicago. The adulterators in that city know that there is no law, so they can palm off their vile mixtures as much as they like. The effect of the recent enactment of a pure-food law in California has been most gratifying to the friends of pure honey. I have already announced that glucose-mixers have been arrested, and now, of course, the rest will proceed very cautiously in their nefarious business. There are already good laws in Ohio and Michigan, as I happen to know. There are doubtless other States with good laws; but in the great majority there are no pure-food laws.

A BACTERIOLOGIST AND FOUL BROOD.

F. C. **Harrison**, Bacteriologist of the Ontario Agricultural College, is about to make the subject of foul brood a special study. He has written us for the privilege of consulting our works here at Medina—a privilege which we have most gladly accorded him. After acknowledging his thanks he writes:

> *E. R. Root:* I should be glad to make bacteriological examination for foul brood of any suspected material that may be sent me, without charge, and I should be indebted to you to publish this fact in your paper. My object in doing this is to get hold of as much material, and from as widely different sources, as possible. F. C. **Harrison.**
>
> Guelph, Ont., Apr. 28.

Those of our readers who have foul brood in their apiaries will, we hope, be kind enough to forward specimens of the disease to Mr. Harrison. If they are doubtful as to its being real foul brood, send a sample any way, and learn what it is. The only regret is that Ontario, with its splendidly equipped agricultural college, is not in the United States. But even if it is not, I am sure we bee-keepers on this side of the line will be very glad to assist in any way in our power.

ARBITRATING DISPUTES BETWEEN COMMISSION HOUSES AND BEE-KEEPERS.

A DIFFICULTY arose between one of our prominent commission houses and a bee-keeper. Both parties finally agreed to have the matter arbitrated by the National Bee-keepers' Union. All correspondence was submitted to General Manager Newman, and by him turned over to a board of arbitrators. Each arbitrator turned in his own decision independently and without the knowledge of what any of the other members had decided or would decide. These decisions were laid before the General Manager, with the result that the commission house was to pay the bee-keeper a difference of $10.00 as settlement. These three or four men, acting as arbitrators, certainly could have no interest one way or the other; and while the decisions would probably please neither party exactly, it is probably as nearly fair as any thing could be.

It strikes me that this method of settling difficulties between an honest commission house and a bee-keeper equally honest is the way. Very often I have been called upon to act as arbitrator in disputes of this kind; and, no matter which way I have decided, I was sure to merit the ill will of one of the parties; but when a *body of men* reach a conclusion, and unanimously decide upon a certain plan of settlement, neither party has much ground for feeling that he was not given fair treatment.

"BEE PIZEN."

GENERAL MANAGER NEWMAN does not seem to take it very kindly that the editor of the *American Bee Journal*, Mr. York, should deem his official acts and utterances as proper subjects of criticism; and in replying to an editorial on page 248 of the *American Bee Journal* he uses some pretty harsh language. Referring to the present editor of the paper that he himself once edited, he says: "If the writer intended to be honorable he would not attempt to misinterpret the quotations from my report." Other expressions, such as "bombastic," and "contemptibly mean," are uncalled for when directed at one who worked with him for years in the same office—in the same harness, as it were—striving to make the "Old Reliable" the good paper that it was. In another bee-paper Mr. Newman refers to the publishers of the *Bee-keepers' Review* and of this journal as the "worst enemies" of the pursuit of bee-keeping —one for one offense, and one for another.

I remember of once hearing Mr. Newman at a convention recess say that he often found it necessary to withdraw the "stings" from certain articles that were sent in to him for publication, as he thought it was unwise and unnecessary to wound; that argument courteously given was more effective. His policy was a good one, and is practiced by many a wise editor. Now that he is out of the editorial harness of the *American Bee Journal*, it seems to me he has forgotten himself. The *force* of his articles would have been *very much greater* if he had pulled out the stings rather than to have sent them as they were for publication, bristling with "bee pizen." Such violence of language quite defeats its end, and I am surprised that Mr. Newman should not see it so.

PETTIT'S NEW SYSTEM OF PRODUCING COMB HONEY; EXPERIMENTS AT THE ONTARIO AGRICULTURAL COLLEGE.

ON pages 51 and 160 we have published articles relating to Pettit's new system of producing comb honey, or, rather, a method by which the outside surfaces of the two rows of sections next to the super sides may be filled out as well as the surfaces in the center of the super. Experimenter R. F. Holtermann, in the Twenty-second Annual Report of the Ontario Agricultural College, says: "Comb-honey producers know that, with rare exceptions, in the comb-honey supers now used, sections having their faces to the wood are filled last, and the inner sections have to be left capped and finished on the hive, waiting for the bees to finish the surface of the sections joining the wood."

The idea of S. T. Pettit, of Belmont, Ont., already outlined in these columns, was made the subject of an elaborate experiment last summer at the Ontario College. The main objects in the experiment, which I give in the language of the experimenter, are thus set forth:

1st. To compare the number and size of pop-holes in the sections of supers with the bee-space above and those without. Those without had a quilt next the sections; those with, had a board with ¼-inch bee-space over the super, between the board and the sections.

2d. To compare comb honey having the face of the last sections and wood sides of supers separated by only the usual one bee-space, and those having two or more bee-spaces. The two or more bee-spaces were secured by means of dividers of different construction. Some were of solid boards with holes bored in them. Others were made of strips. The bee-space used was ¼ inch in every case, and it is very important that this should be exact.

Following is the result of the work of seven colonies with cloth and no bee-space over the sections.

Hive No. 1—An average percentage of pop-holes.
Hive No. 2—Same as number one.
Hive No. 3—Pop-holes slightly more numerous than the average.
Hive No. 4—Rather better than preceding supers.
Hive No. 5—Although sections were particularly well filled, the pop-holes were remarkably numerous.
Hive No 6—A still larger percentage of pop-holes in the corners both at top and bottom.
Hive No. 7—About the same as No 6.

The result of experiments with ¼-inch bee-space over the sections, nine colonies in the group, is as follows:

Hive No. 1—About 10 per cent fewer pop-holes than the average of the above.
Hives Nos. 2 and 3—Same as number one.
Hives Nos. 4, 5, and 6—About 7 per cent fewer pop-holes than the average of above.
Hive No. 7—Still fewer pop-holes.

Hives Nos. 8 and 9—A very decided advantage over no bee-escape.
Hive No. 10—About the same as the average of those having no space above.
Nos 11 to 16 showed a smaller percentage of pop-holes.

GENERAL REMARKS.

One fact was very conspicuous, viz., that the pop-holes in sections with ⅛-inch bee-escape were smaller than in those without. This report tallies with results obtained from experiments conducted in previous years, but not before reported. The probable reason for there being fewer and smaller pop-holes with the bee-space above the sections, is, that the bees appear to require a space to pass from section to section, and a bee-space above facilitates this passage.

The result of the experiment with two or more bee-spaces between the side of the super and the face of the section next the side, is as follows:

Two bee-spaces and divider at one side of the super and only one bee-space at the other.

Hive No 1—The outside of sections with the two bee-spaces and divider were better finished and cleaner than the side with only one.
Hives Nos. 2 and 3—Same as number one.
Hives Nos. 4 and 5—No perceptible difference as to finish of comb, but the sections were cleaner.
Hive No. 6—A difference in favor of the two bee-spaces.
Hive No 7—A marked difference in favor of the two bee-spaces.
Hive No. 8—The side with two bee-spaces decidedly cleaner and better finished.
Hives Nos. 9 and 10—Two bee-spaces on each side of the super, both sides clean and perfect.

The dividers were differently constructed. One set had holes bored $\frac{5}{16}$ inch in diameter and 3⅝ inches wide, and material was ⅛ inch thick. The other set were made of strips the entire width of the divider, 3⅝ inches, and seven strips $\frac{5}{16}$ inch wide with ¼-inch spaces between. The dividers with the holes gave the best satisfaction. With the strips there were more burr-combs and the comb opposite the space between the strips was ridged, giving the entire section a ribbed and uneven appearance, a modification of what we find in the common washboard. Five other hives were supplied with two spaces on one side and one on the other. In three there was no marked difference; in the other two there was a difference in favor of the two bee-spaces. Two hives were provided with queen-excluding metal as dividers. The result was as good as with any other divider; but owing to the limber and pliable nature of the zinc and the importance of having the bee-space neither more nor less than ¼ inch, we would not recommend this material.

The results of the above test and those obtained from other hives in the apiary, show a marked difference in favor of the two bee-spaces. The reason would appear to be that, with two bee spaces, the extra layer of bees on the outside keeps up day and night the normal heat necessary for comb-building and capping. With more than the regular bee-space and no divider, the bees would, as is well known, extend the comb until, before the point of capping is reached, the space would be reduced to the regular size. Several tests were made comparing a still larger number of bee-spaces and dividers, but no additional advantage was shown, and possibly they furnished too much loafing-space for the bees. The one divider and two bee-spaces, during the past season, showed a great advantage in this method of taking comb honey.

Engravings from photos reproduced show a marked difference in favor of the Pettit system. These I would reproduce here; but for lack of time I bring it before our readers at this time, as just now is the time to fix up supers in order that the experiment may be tested.

By the old plan these outside rows of sections had to be sold at a considerably lower price; and the little expense necessary to make this experiment is so trifling that every comb-honey producer can well afford to try it, as it can be adapted to any hive or super.

In brief, Mr. Pettit's system is a scheme to get the bees to seek the sides and ends of the hives after they come in loaded with honey, rather than to crawl up through the center of the brood-nest, thence into the center of the super. By dispensing with one row of sections Mr. Pettit uses a divider or separator perforated and bee-spaced on both sides, between the outside rows and the sides of the super. As there is only a bee-space on each side of this divider, bees will not utilize this room for building comb; but there will be a double row of bees here on each side. The consequence is, additional warmth is secured—at least, enough it is said to make it equal to the center of the super. This extra warmth, and the fact that the bees find it easier to seek the sides of the hive than the center, induces them to fill all the sections simultaneously, and to make the outside faces of the combs of the outside row of sections as perfect and as nice as those of the center comb.

Although theoretically, at least, this scheme of Mr. Pettit's seems to be good, and although it has worked well in his hands and at the experiment station, Ontario, it may not prove to be equally successful with bee-keepers at large; but nowadays, in consideration of the low price of honey, we should all grasp at every idea that promises to give us more and better honey.

EXPERIMENT IN WINTERING.

This experiment related to the advantage of having a horizontal open space through the center of the brood-nest during the winter so that, when the cluster contracts by reason of the cold, it could draw up toward the center. The experiment seems to show that a divisible brood-nest with a horizontal space between the two sets of frames allowed the bees to contract to better advantage than in a deep brood-nest made up of one set of frames. Mr. Holtermann calls attention to the fact that "as long as many bees are together they do not easily chill; but when one or more become separated they soon chill and perish. The natural direction for the bees to travel when the cluster contracts is toward its center; and it will be found that the bees which, by contraction, become detached from the main body of the cluster, perish, owing to their inability to travel around the top and bottom of the combs. With a ¼-inch space between the two sets of combs the swarm can expand or contract without breaking the cluster, the bees passing between the two sets of frames."

Mr. Holtermann states that "an experiment will be made during the winter of 1896–'97 to test the value of winter-passages cut in ordinary combs." The experiment has now probably been made, and the results determined, but not yet published. Mr. Holtermann expresses himself as believing that "if these passages prove as advantageous as the space in the two sets of frames, they will be much more desirable."

MEDICINES FREE OF CHARGE; ELECTROPOISE; THE AIR-SHIP, ETC.

Doubtless many of you, at least if you read the advertisements, have noticed the great number of remedies that are sent absolutely free, postage paid and all. The quantity sent is only a sample, of course, so you may see the thing really has virtue. When I first saw it I said to myself, "Why, it certainly must have something of real merit or they could never afford to send it free of charge and pay postage besides."

But to make sure of the thing I sent for a sample. The first was the wonderful "kakava." The sample received looked like dried bark or leaves of some plant. The taste of the "tea" prepared from it reminded me at once of Warner's Safe Cure. No doubt it is a preparation from the same plant. I once took about a dozen bottles of the Safe Cure, as you may remember. This kakava was warranted to have a wonderful effect on the kidneys. It would "save the trouble of getting up several times during the night," etc. I was very anxious to have the medicine succeed, and I certainly had a great amount of faith. Now may God help me to advise wisely and carefully in regard to this matter of medicines for many infirmities.

Along with the sample came, free of charge, a little box of pills. There were a dozen or more. In order to have the root do its best, the patient was to take a pill every night. I took the pill, as a matter of course. I had been troubled with constipation, as most people are who are on the lean-meat diet. The pills were certainly very good ones—that is, they were the pleasantest and mildest physic I think I ever found, and, as a matter of course, they made me feel better. The pills certainly gave at least temporary relief; but the kakava root without the pills, I honestly believe, had no effect one way or the other. Perhaps I ought to be ashamed of myself to grumble or find fault when the medicine was furnished free of charge, postage-stamps and all. I am not going to complain; in fact, I have sent them enough to pay for the medicine and the postage, because I do not want the remedy for nothing. You may say, "Why not keep on with their medicine, and why not take the physic?" Because I am sure God did not intend that his creatures should force Nature to do her work by the use of physic.

Apples are even now quite plentiful around Medina. Farmers have been bringing in some very fine ones at prices ranging from 25 to 50 cts. a bushel; and there are a few apples in the market at that price even now, this 6th day of May. All along during the spring, I thought of the apples I enjoyed so much from our own trees last fall, and tried repeatedly those offered for sale this spring. Either I am different or the apples are different, I am forced to conclude, for they did not "set" well. They made me think of the Irishman who had just eaten his first peaches. He said he liked the flavor of the fruit very well, but the "seeds" lay rather heavy on his stomach. You see the poor fellow had swallowed stones and all, not having seen peaches in the old country. Well, a few days ago a boy drove up with some remarkably fine apples, and asked me if I did not want some Belmonts.

"Belmonts?" said I in surprise. "Why, my dear young friend, the Belmont is a *fall* apple."

"Yes, I know; but these were kept in cold storage. We just took them out to-day."

He then handed me one. Now, you would all think me foolish if I should tell you just how *much* I enjoyed those Belmont apples.* I ate one, then another, and then a third one, then waited to see what Nature said. Why, they were so mellow and rich and delicious I could not believe for a moment they would distress me, and they didn't. In the afternoon I ate three more. The next day I ate half a dozen in the forenoon and half a dozen in the afternoon. Then I ate all I wanted as long as they lasted. Now, please do not call me such names as some of you called my good friend Terry when he ate so many strawberries. Nature was calling for just what my digestive apparatus and physical system in general lacked; and when she got hold of the thing she craved she just in her own way said so, and said, as well as she knew how, "Pass it along, a good lot of it." The constipation let up at once. Every thing got into natural channels, and I felt like swinging my hat and giving a big hurrah, and then using my muscles for chopping wood or doing something useful. Now then:

God did not intend us to use pills, but he did intend that we should select tender, luscious fruit, and that we should use enough of it to induce Nature to perform her appointed work with regularity and thoroughness. Since the Belmonts are gone I have tried greenings, Baldwins, russets, Ben Davis, and other apples that we are likely to find in the spring, but all of them proved to be more or less indigestible. They are something like the Irishman's peachstones.

The cold-storage building where these apples were kept is in Wellington, Ohio. The apples were worth 15 or 20 cts. a bushel when stored last fall; but they sell now readily at 50 cts. a bushel, and we retail them on the wagon at about 75 cts. Here is an opening for fruit-growers, and here is a hint, too, for those who are in pursuit of health. I have furnished this same kind of apple to my friends and relatives who have been unable to eat ordinary apples, and their verdict is just like mine. Let us now go back to free samples of medicine.

I answered another advertisement, and got a bottle of liquid (postpaid) that tasted to me exactly like brandy and good honey shaken together. Please do not lose your respect for Uncle Amos if he tells you he found it a very nice medicine to take. Along with the medicine came a free box of something to put on chapped hands or sore feet. I found the latter very good; but the medicine, I feel quite sure, had no effect, one way or the other. If this be true, how, then, is it possible for these people to *continue* furnishing *free samples*, yes, and filling our periodicals with expensive advertisements, that they may be *permitted* to furnish their stuff free of charge, and postpaid besides? What is the explanation of this? Both firms I have mentioned are quoted as being worth many thousands of dollars. They are prompt and straight in their business. What is the secret of all this? How can they afford to throw away their money in this way? Why, I will tell you. If you like the medicine, and want some, it is $2.00 a bottle, or two bottles for $3.00. If you buy four bottles at one time they will pay the express charges to any place in the United States. They may have to give away a good many samples free without getting any thing for them; but once in a while a customer thinks he is benefited, or gets better from some cause or other, and keeps on buying. A friend of mine told me her father had used some eighteen or twenty bottles. He at first thought it was doing him good, but finally decided he was not sure it had any effect whatever. It is the old Electropoise business over again.

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* The Belmont apple is the same thing, I believe, that is known in many localities as the "Gates" apple; and it is also very similar to what we used to call in my childhood the Golden Pippin. These latter I can remember in my grandfather's orchard. Their special characteristic was a peculiar honey sweetness just about the blossom end; and we children used to think so much of them when they were fully ripe that we devoured them core and all. How well I remember of going down cellar on a winter evening to get some Golden Pippins! Sometimes the tallow candle, held by unsteady juvenile hands, let a drop of melted grease fall on the Pippins. But that did not spoil them for the juvenile taste and appetite. Since I have grown to manhood I have procured trees and grafts of the old Golden Pippins; but of late years they are affected by a peculiar rotting at the core. The Gates (or Belmont) apples do not seem to have this infirmity; but I hardly think they are equal to the Golden Pippin. There is still another apple that, when grown to perfection, reminds me of that old Golden Pippin. It is the Vandevere.

Take the people at large, and you will find certain impressible natures that imagine they are benefited, and hand over their money. Yes, there is a *great army* of people, perhaps, scattered through our country who stoutly insist they are greatly benefited by a humbug toy hitched to their ankles by a piece of wire. In fact, some of them are offended if you even suggest the thing has no virtue.

Providentially I have been furnished with a most overwhelming proof of the truth of my position. You have all heard more or less about the air-ship. May be some of the readers of GLEANINGS have seen it. If you have, please write and tell me about it. There certainly *is* an air ship sailing about the country over our cities and villages at night time, for dozens of people have seen it and are seeing it every day. Their testimony is just as plain and conclusive as that of those who use Electropoise—yes, even more so. If you have been reading the papers you have seen the testimonials, with name, place of residence, etc., signed to it. Now, the air-ship has done us some good, and it is doing good. It demonstrates that, without question, there is this queer phase in humanity. It is scattered all about; it may be in your next door neighbor; in fact, you *yourself* may be one of the victims. Medical men and scientists had long suspected it. Electropoise confirmed this supposition. Why, bless your heart, the proprietors claim to have testimonials from a *hundred ministers of the gospel*, and religious periodicals all seem ready, or at least nearly all, to accept their silly advertisements. I have not yet learned that any ministers of the gospel have seen the air-ship. God forbid! This talk needs a brief summary. The summary is this:

Be careful, dear friend, how you let your imagination lead you into paying out good money for some worthless medicine or other trap that some worthless and swindling concern may try to push off on to you. Furthermore, be careful how you even accept samples that are furnished you free of charge. These men know what humanity is made of, and they are not wasting their postage-stamps or throwing away their money in this or any other way, you may be sure.

The people who declare they have seen the air-ship are honest, or a great part of them are honest, no doubt—at least we will try to believe they are so. Almost every town or village in our broad land furnishes one or more of these peculiar impressible people; and when the air-ship, Electropoise, or a certain patent medicine is talked about these are ready to give their testimony.

NOTES OF TRAVEL

BY A. I. ROOT.

Before reaching Prescott we came down out of the mountains across quite a long level plain. This plain is called Lonesome Valley, and no wonder—not a tree, not a human habitation, not any thing except the great mountains away off in the distance. Friend Jordan told me some experiments had been made, and they felt pretty sure that sugar beets could be grown in that "lonesome" valley. They have a little rain along the latter part of the winter; and this rain, it is said, is sufficient to cause the seed to germinate; and after the plants once get down into the desert soil they will mature a crop of beets large enough, and of the best per cent of sugar, without any later rain.

There is one station in the middle of Lonesome Valley. It is called Davis; but instead of being a town or village there is not a building of any sort—not even a coalhouse. All you can see is some lumber-piles. This lumber is brought in from a sawmill away up in the mountains, too far away to be in sight. Jerome Junction has two or three buildings. Between this point and Prescott there is some very fine scenery, but none to compare with that further along. Although the turns in the railway are not quite as sharp as near Jerome, the scenery is grand and beautiful. Great rocks shoot up like needles. All you have to do is to fix your eyes on these and then watch and see how the train curves in and out around the mountains. Great mountain peaks rise up in their grandeur, and the railway seems to hover around them for an hour or two almost as if it were loath to break away from their awful presence. There was one round-topped peak that it seemed to me was in view a great part of the day. The turnings in and out, horseshoe within a horseshoe, as I described in my last, were incessant. As the weather was mild I spent the greater part of the time on the platform at the rear of the train, drinking in the wonderful scenery before me. Skull Valley I have casually mentioned before. It is so named, I presume, because of the great number of skulls and skeletons of cattle scattered for miles around. I suppose this was caused during some season when the usual amount of rain was lacking, and the vegetation of the whole country was scorched and burned up by the terrible Arizona heat. But when we got several miles away from Skull Valley, down toward Kirkland, we found what is called a "cienega." This is a piece of land where Nature has worked out sub irrigation, and it is just about as nicely fixed as our folks at the Experiment Station at Wooster have it in their greenhouses. It is caused by a valley or depression with an impervious subsoil, so that the water stands so near the surface of the ground that the roots of plants or farming crops will go down into it; and with the intense heat every thing just thrives wonderfully without any assistance from rain. Such tracts are found at different points all through California, and occasionally in Arizona. At one point near Tempe the ground became so wet from frequent irrigation that water stood on it the year round, and no crops could be raised until some deep canals were cut through to let off the surplus. This surplus was used for irrigating other grounds at a lower level. I climbed down into one of these canals, and saw the water coming out of the gravel like a beautiful spring.

A little further down below this cienega a river takes its source. The name of this river is the Hassayampa. I presume this is an Indian name. Most of the mountains rivers, and even towns in this locality, are called by Indian names, and I am glad of it too—if for nothing else, to keep in memory the existence of the red man. Well, there is an ancient Indian tradition that whosoever drinks of the Hassayampa River can *never* tell the truth again afterward. Some of my friends cautioned me, and declared that they had known people who had drank of this water who could not tell the truth, even when they *tried* to; and I am really afraid I have seen a few people affected this way who never even *saw* the beautiful Hassayampa. Now, I pledge my word and honor, dear readers, that I did not taste a drop of that magical water. I stood on the car platform and watched the river in its windings; admired the gorgeously painted cliffs and beautiful scenery all along its tortuous course; but I did not drink any, because——I did not have a chance.

In passing through these deserts and over these mountains, for the most part so uninhabited, one begins to wonder if people can really live and be happy amid such wastes; but when it comes dinner time, and the train slows up beside some unpretentious building or dining-station, you look about you in surprise to see a well-spread table, with roast turkey, and vegetables and fruits to match, almost in keeping with a city restaurant. Yes, there are neatly dressed obliging women to wait on you besides, and the price of the dinner is not extravagant either.

I was so much interested in the wonderful things about Jerome a good many told me I would have to visit Congress; but I decided that *one* gold-mining town was enough for me. I was considerably interested, however, in a white-looking village off from the railroad a piece, up in a mountain canyon, which I was told was called Fools Gulch. It puzzled me at first to know whether it was really a village or a cluster of wigwams made of cotton sheeting. I am told they have there all sorts of dwellings unless, may be, it is a three-story brick. The houses are of all sorts and sizes, but they are mostly made of cotton cloth. Even the "Grand Hotel" has no cover, or walls either, thicker or more expensive than sheeting.

All around in this locality the one topic is mining. A man got on the train at a little station. As he was a resident of the vicinity I asked him some questions, and the subject of bees came up. He said his business was that of recovering gold from the ores by what is called the "cyanide" process. I believe he had an invention along that line. He said when he first built his vats in the open air, to hold the cyanide solution, the wild bees came in great numbers to the vats because the vats made such a convenient place for drink. In the desert, bees go miles for water. The cyanide, as you know, is a deadly poison. Said he:

"Now, stranger, you may not believe it; but when I saw I was going to poison all the bees in the country I felt a good deal troubled. Pretty soon, however, they seemed to 'catch on' to the fact that every one of their comrades that drank at those vats soon turned up his toes. In my work I have just *one* vat of pure water, and the bees in a very few days abandoned the cyanide-vats entirely, and now they drink regularly, thousands of them, at the vat containing pure water, and nowhere else."

Now, you need not suggest that this man had been drinking of the waters of that enchanted stream. I think he told the truth, but I rather suspect his deductions were not exactly correct. The bees probably discovered that cyanide is not very palatable, and so settled down finally to the vat of pure water, just as they choose a drinking-place where *salt* water is furnished, rather than the other kind.

At just about sundown the train drew up at the station of Phœnix. I pumped up my wheel, and was soon flying over the limestone road where I started out before daylight just two weeks before that. My brother's folks were rejoiced to see me, tanned up like an Indian. The allotted time for my vacation was up, and I very soon hustled back to old Medina, arriving exactly in the *middle of January*, and you know how it turned out.

OUR HOMES.

Inasmuch as ye did it not to one of the least of these, ye did it not to me.—Matt. 25:45.

Dear friends, I suppose you have all read more or less in the papers in regard to the starving millions in India. Yes, it is *millions* who will doubtless starve unless they have aid. There are some people who will say, I presume, "Well, what is that to us?" "We have all we can do to take care of our own people," etc. But here lies the difference between Christianity and no Christianity. The gospel of Christ Jesus admonishes us to love our neighbor as ourself; and it further teaches us by that beautiful parable that our neighbor is anybody who is in want—starving, if you choose. Even though he may be on the opposite side of the globe, he is our neighbor still. It has been estimated, and generally published, that a dollar of our money will, as a rule, carry one of those starving people through the season so as to save his life, in all probability. There are something like three and a half millions who will be likely to starve unless they have help. Three and a half millions of dollars would save them. That is an awful big sum to send away to starving heathen, as some term it, I know; but we have single individuals in this country who alone are worth enough; at least they have control of sufficient funds to do the work. I can not refrain from adding, "More's the pity." This expression may not be good grammar, and it may be slangy, but it expresses the matter. From my point of view it does not seem as if one person ought to control such an amount of money. Never mind; we are not going to discuss political economy or social economy just now. Let us give nourishment to the starving millions, and settle the other questions afterward. Of course, we are not called upon to perform impossibilities. We are not expected to starve or neglect our own children in the effort to feed those in that far-off country; but it does seem to me that God calls on each and every one of us to be careful about extravagance and luxury.* In our town it is quite fashionable to have various kinds of socials and clubs and gatherings in the evening, and they have expensive suppers and banquets. I have never attended more than one or two of these. In Rootville we all have a good supper at home, every night the year round, and I *always* thank God for my part of it, not only in words when I ask a blessing at

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*Since the above was in type I have found the following in a recent number of the Chicago *Advance:* "In view of the woes and adversities of the poor, no condemnation can be too severe for those rich men who make needless ostentation of their wealth, no matter how honestly gained."

the table, but from the bottom of my heart. I am well and strong now, and enjoy my daily food; but I do think it is wicked to get up expensive suppers, and more wicked still to partake of them *after* we have had a good one at home. I would save the money that these suppers cost, and give it to starving India. Why, one's *conscience* ought to keep him awake nights, even if the unwholesome food at an unseasonable hour does not do it. The saddest part of this whole foolish fashion or craze is that it is mostly done by *Christian people*. Yes, our churches—a great part of them—seem to encourage and foster this feeding of people who have already been *well* fed. The laws of health and the laws of God should protest against it.

Now, this is only *one* of the things that occur to me that we might cut off in order to save suffering and avoid the loss of life. There are things we do not need—things we should be better off without—that most of us are paying money for. We profess to be followers of Christ Jesus; and in our text he himself makes the startling statement that when we are leaving these people to suffer and die for want of food we are leaving *him* to suffer and die. Humanity nailed him to the cross, even after he left his heavenly home, and came to save a suffering and sinful world. We of this age claim we have nothing to do with this act of his crucifixion; but if we leave these people to starve while we are ruining our health in consequence of the great plenty around and in our homes we are neglecting and ignoring the very first principles of Christianity. Our own government, in a Christianlike manner, has agreed to move 4000 tons of corn or other food from New York to India, free of charge; and this makes me feel glad, because in it there is a glimpse that, with all our faults, we are in some respects a Christian nation. The *Christian Herald*, 160 Bible House, New York, seems to be pushing this matter with more vigor than anybody else. T. Dewitt Talmage is in the field, and seems to be taking the lead, and appeals are coming through all the papers.

And now, dear friends, for humanity's sake and for Christ's sake shall we not each and all of us look about us and see what we can spare, and that, too, without very seriously depriving ourselves, that we may help just a little poor famine-stricken India? A human life for only one dollar, or a dollar's worth of something you have to spare!

And that is not all. Jesus' ministry was not altogether preaching. He healed the sick and fed the hungry. America has the greatest opportunity to heal the sick and feed the hungry, perhaps, she ever enjoyed. Corn and other food supplies are in such great abundance that the prices offered hardly pay the cost of production. Our missionaries are on hand already organized, and prepared to feed the starving. There is an opportunity before them such as the world never saw before to gain the confidence of the heathen, to glorify the God of our fathers, and to proclaim the gospel of Jesus Christ to all these ignorant and benighted people. A few days ago Rev. W. E. Rambo was here on a visit from the famine-stricken region. He looked over my high-pressure gardening, and said something like this:

"Mr. Root, your high-pressure gardening is the thing of all things that is needed in India to ward off these terrible famines. If these people knew—if they were once taught—how much good nourishing food can be grown on a little patch of ground, our famines would be ended. They need to have reservoirs to store up the water in time of floods. They need irrigating-canals to spread the water over the ground. They need to be taught *intensive* gardening."

Now, these people have been backward in accepting our teachings. In China they tore up their one railroad and demolished the locomotives, and, if I am correct, these very locomotives might have saved most of them from starving a few months later on. Now is our opportunity to *teach* and *preach* successfully. That you may not think I am talking about something that does not come within the province of bee-keepers, permit me to submit the letter below from a constant reader of GLEANINGS:

A LETTER FROM A READER IN STARVING INDIA.

GLEANINGS has been sent to me for years. I can not forbear writing you a few words as to the sad times that have fallen on India in these last days. Plague on the west of the peninsula and famine over at least one-third of this empire of 300 millions. The plague has done no such damage to life as the famine, but it has caused untold damage to business, and has carried away about 15,000 lives. Three-fourths of all the cases that have been smitten with the disease have died, and all medical skill seems so far of little use. By famine, already in the last few months about 200,000 have perished of hunger, and at the present time about three and a quarter millions of persons are being fed on famine-relief funds. Of these, one in five is in a state of helplessness, and is in what are termed hospital camps. The famine is not at its worst, in these parts; but the distress is now closing down on the poor, and the next few months are full of dread for thousands about us. We are in a forest part of the country, and the forest produce has kept the people on a kind of food, that answers for the time, some six months longer than the people in the open country could pull on for. Now, even this is fast coming to an end. Many in the villages about us are now living on exactly what the wild swine do—that is, on roots, wild yams, berries, flowers, herbs, etc.

Recently I felt that I could not tarry to do something for the poor near by, and so, on a village that I secured for the mission a few years back, I marked out some work in the shape of a dam for the storage of water when the rain comes, and gave a lot of the poor work at very low rates—$1.00 per 1000 c. ft. I had no funds; but a friend lent me some, and about 100 people are at work. They represent families that number perhaps 500 souls. The work will give about $1000 in work, and help to pull through, to the time of the expected rains, 1000 souls. We get our regular rains in June; and the thought that rain may not come then is too terrible to contemplate.

All the seed grain has been eaten up; and when rain comes the condition of the people is one of great helplessness. They must be helped then. When I saw your note to-day I thought that some of the bee-men of America might be moved with pity for the distressed of this land, and that you might put some note in your journal that would give them a chance to send them something through you. It may seem incredible, but millions will not get one dollar's worth of food per person in the next three months, and yet will live; $500 will help us to keep 500 souls here out of the reach of starvation for the next three months.

I have read for years in GLEANINGS what leads me to think that you are Christian men, and thus dare to hope that this plea for the poor heathen of India will not fall on unsympathetic ears, though this writer be an utter stranger.

I have been over 20 years a Methodist missionary here in India, and expect to spend all my remaining days here in the Master's work.

I am an Illinoisian by birth, and all my people still live near Bloomington, Ill. My family are at present in Wheaton, Ill. My wife left India, broken down, in '94, and I expect her and the children back here this year. If you wish any reference to satisfy you as to who I am, I will refer you to Richard Grant, Esq., 181 Hudson Street, New York, or Anderson Fowler, Esq., Produce Exchange, New York. Twenty years have I given to the Lord's work in this land, without salary from any missionary society. I have trusted the Lord and his people, and what the Lord has sent me; and what I have been able to earn has supported me and mine, and a great deal of work for the Lord. To this sort of work and life my wife and I are pledged.

In closing, let me ask you to continue GLEANINGS. And if the Lord move your sympathies on behalf of the suffering here, I hope you will speak the word to your friends through your journal, and pray that some help may come through you to the suffering here. *I am not in need, nor are my Christians;* but the poor heathen, who know not God to cry to, need your prayers and sympathy. God is full of mercy, and these famine and plague voices are his, and as full of mercy as any ever sent to the perishing.

C. B. WARD.

Yellandu, Nizam's Dominions, India, Mar. 25.

Let us now come back to our country, and read a letter from a brother bee-keeper who seems to preserve a very cheerful spirit, even although he has had terrible trials and losses:

A SAD STORY FROM ONE OF OUR BEE-KEEPERS WHO HAS SUFFERED FROM THE FLOOD.

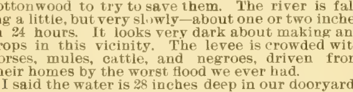
Friend A. I. Root:—I am sitting in our humble domicil, not able to leave our door unless we go in a boat. Our stock is standing on the levee, in front, fighting the buffalo gnats; the younger of the family out there trying to keep the gnats from killing horses and cows; the water at our door is 28 inches deep. What bees we saved, some 30 colonies, are up on stilts, hurriedly made when the levee broke some five miles north of us. We lost some 200 head of hogs, but have saved horses and milch cows so far, though they are getting very poor. We feed them all we can; but being about out of feed, we are cutting and boating to them green willow and cottonwood to try to save them. The river is falling a little, but very slowly—about one or two inches in 24 hours. It looks very dark about making any crops in this vicinity. The levee is crowded with horses, mules, cattle, and negroes, driven from their homes by the worst flood we ever had.

I said the water is 28 inches deep in our dooryard; but it is much deeper in most of the town. On the main street, on which are the court-house, postoffice, and most business houses, it is from 5 to 8 feet deep. All business is suspended; no trains here in 25 days. The levee broke on the last day of March, and we were flooded in a few hours. I saw Mr. Diver, and he tells me he lost all his bees, as did Syples at Gunnison, 8 miles north of us. When our bees swarm, which they have been doing, we have to let them go —can't save them. This is a gloomy picture, but not nearly as bad as it actually is.

There have been several persons drowned, and a great amount of stock; in fact, the stock are still dying fast after being gotten out on scaffolds and the levees. I guess there are 200 or 300 head dead within less than a mile of Rosedale; and, to make matters worse, they have the measles among the people, and some are dying from that cause. I have received but one copy of GLEANINGS since the water got us.

R. J. MATHEWS.

Rosedale, Miss., April 26.



CULTIVATING PLANTS AND CULTIVATING BOYS.

Right over in the greenhouse across the way I noticed yesterday, April 27, a good-sized bed of Earliest in the World tomatoes that were getting crowded. In fact, the whole seemed all at once to have got to the point where they were discussing "who should be tallest." With the present fine weather they would be two or three inches taller than I want them, in 24 hours or less. They must be moved. Fred and Frank were busy filling orders for potatoes and other stuff that had to go at once. Mr. Green was superintending the boys planting half an acre of strawberries. I felt as if I could not have those tomato-plants in that rich soil one day longer.

Pretty soon school was out, and three bright earnest boys were ready for a "job." There was a bed already made, ground fined up and nicely leveled off, and even marked for the plants, 7 inches apart from center to center. The boys would take up the plants and set them out in the bed, without any question, if I asked them to do so, *without* any instruction; but they would get the dirt all off the roots, and would probably make other blunders, and my beautiful early plants, growing so nicely, would be injured, and many of them killed. If I could be with them for fifteen or twenty minutes I was pretty sure they would do it almost if not quite as well as some expert men. The boys were from thirteen to fifteen years of age. I called them.

"Here, Carl, you get every thing ready to put out those tomatoes. Have a couple of bars to stand on; and here, Clyde, you take the hoe-handle dibble* and make the holes just large enough for the plants that Carl is going to set out; and, Clare, you come with me. Bring along two trays and a trowel." Clare has not had as much experience in gardening as the other two, but he is a skillful boy when he knows what we want.

I showed him how much water to give the plants, where to place his tray, how to handle his trowel, and then held up a plant with a ball of rich black soil hanging to it, say as large as a good-sized hen's-egg. I took up three or four, placed them on the tray, tops all one way, and told him to try it. He soon had a dozen on the tray very nicely. Then I called Clyde to take the tray over to Carl. Carl lifted the plants so carefully that little if any of the dirt tumbled off — set them down in the holes widened out with the hoe handle dibble, and pressed the earth close around them When he had got out the dozen, Clyde carried back the empty tray and swapped it for a filled one. While he was gone I carried the hose over to where Carl was putting the plants in, and opened the valve just so as to give a small stream. Then Carl let enough on to each plant, without wetting the foliage, to get the roots well soaked. After I had instructed each boy just how to work I watched them for five or ten minutes and knew they would do it all right. In two hours over 500 plants that were crowding and struggling for more daylight were put outdoors and moved from *three* inches apart to *seven*. As fast as Carl got a row of plants in, one of the light board shutters was laid over them, and moved along so as to cut off the sun. The plants stand up this morning, April 28, just as proudly and gracefully as they did in the greenhouse; and, shaded by the shutters during the heat of the day, I do not expect a leaf to wither or even scarcely to droop.

Now, friends, when plant-raising can be made to go along like clockwork, and have all the plants live, it is one of the nicest things to work at in the world. But when you do your work bunglingly, and have failure after failure, I do not wonder that people call growing plants a puttering small business, and want to get out of it.

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*I will explain that our hoe-handle dibbles are made from any hoe that gets broken off at the shank. We have the blacksmith heat up the shank and draw it down to a blunt point. While doing this he keeps the handle of the hoe wet so it will not burn; then it is finished up with a file or emery wheel, and kept polished and bright. Instead of having to stoop over, as you do with short handled dibbles, the operator stands upright, and makes the holes almost as fast as he can walk along. In using this dibble in our plant-beds (rolling it as it goes down) the operator stands on one of the wooden bars laid across the bed, for we never set foot on the ground in the beds at all.

There, I declare! I almost forgot my heading. While you are succeeding with the plants you are also succeeding in training the boys. The boy who can successfully perform the operations I have described, and have his plants *all grow*, is pretty well fitted to do other important business in life. For instance, without the careful instruction I gave them they would probably have taken the plants out of the greenhouse, without watering, and rattled all the dirt off. They would have laid them on a tray or in a basket with the delicate tender tops bent or broken. In watering, if I had not cautioned them and showed them how to do it they would have turned on a flood of water and washed out the plants and knocked them over, besides spattering their clothes and making the paths a sloppy muddy place. As it was, they did not soil their clothing nor the plants. I like to see plants grow and thrive; but, dear friends, I hope I am speaking truthfully when I say I try to recognize every day and every hour that it is of a thousand times more importance that these boys should grow up careful, trustworthy, successful, obedient boys than it is to grow the finest fruit or vegetables that the world ever saw. God gave us the fruits and the vegetables, and they are indeed a precious gift; but Christ Jesus himself came down from his home in heaven, into this world, and lived—yes, *died*—that the boys might have *life* eternal.

THAT "EARLIEST" STRAWBERRY.

A few weeks ago I spoke about the above strawberry, and alluded to the fact that it was putting out blossoms before any other we have on our grounds, say a week or ten days earlier than Michel's Early, Rio, or any other of the extra earlies. As soon as Mr. E. C. Green saw it he said I would find it had the same fault as Michel's Early — that it makes a great swamp of plants but bears very few berries. Pointing to one of the plants he remarked:

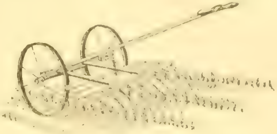
"There, you see those runners coming out already along with your extra-early blossoms."

The plant now has runners a foot long; but each and every plant seems to have stopped the blossom business, and commenced putting its energies into runners. Very likely this is a fault of most of the extra earlies.

THE BREED WEEDER AFTER HEAVY RAINS.

After having written my enthusiastic notice on page 353, last issue, we had a heavy soaking rain which settled our clay soil down so solid that it threw the weeders out for some days. Before the soil was really fit to run the weeders again, we had a rain lasting three or four days; and now the weeds have got such a start that we are obliged to use the cultivators instead — at least until we get the ground fined up once more in proper condition to use the weeder. At the time I wrote I had a little misgiving, and therefore I used the expression, "This morning I feel like calling the Breed weeder the greatest invention," etc. We can with some trouble get the ground in proper order to use the weeder again; and on certain soil, say on muck land or sandy ground, the weeders can be used almost as soon as it stops raining. Our ground is very thoroughly underdrained; but notwithstanding this it takes some time for the water to get away; and after a *heavy* rain it is apt to leave a crust that the weeder can hardly break up. Where we have made heavy applications of stable manure season after season this remedies the defect in a great measure.

Below we give you a cut of the Breed weeder, made especially for onions and other small stuff where there is not room for a horse between the rows.



BREED WEEDER FOR ONIONS, ETC.

We use the above mostly with two boys. One of the boys pushes, and the other pulls on a small cord hitched to the front. This cord he puts under his arms and over his neck so the draft comes just a little above the waist. Both boys either straddle a row of the plants or else go between the rows. They are expected to keep the wheels and their feet off the plants. Where the onions are of proper size we run crosswise of the rows as well as lengthwise. In this case the wheels bend a few plants over; but the harm this does is more than counterbalanced by the more perfect pulverizing we get. Where we use boy power instead of horse power these weeders can be run crosswise on all sorts of crops as well as lengthwise. Good results are obtained by going crosswise at one time of cultivating, and lengthwise the next.

"EARLIEST IN THE WORLD" TOMATO.

We clip the following from *Horticulture* for March:

> I have just inspected a patch of the "Earliest in the World" tomato, in the garden of an acquaintance in Ontario County, N. Y. It was a sight indeed. All plants were trained to a stake, and trimmed to one stalk each. There were immense clusters, from five to seven specimens in a cluster, all of good, singularly uniform size, and as smooth as an apple, not a wrinkle to be seen in any of them, and evenly colored. My friend claims to have left the specimens unpicked, on some of the plants, until about half of the crop had become fully ripe, and then to have picked as much as half a bushel of perfect ripe fruit from one plant, leaving about as much green fruit on to mature later. This would prove unusually good keeping qualities, too. The plants were seven feet high and upward. Of course, we can train any tomato up like that. When all the growth is forced into a single stem, on rich ground, we can run the plants up 10 or 12 feet high easily enough. From the great thrift of the plants in my friend's patch, I infer that growth has been stimulated by heavy manuring, possibly with liquid manure, and that this treatment may possibly account for the remarkably fine fruit and the great productiveness of the plants. It points out a way how to get fine tomatoes, and plenty of them.

Half a bushel from one tomato-plant, of perfect ripe fruit, is a pretty big story; but I shouldn't wonder if we gathered a good half-bushel from some single plants on our grounds last year, and they were left to sprawl about just as they chose. I was astonished to see so many tomatoes, each and every one "as smooth as an apple." While reading the above it made me feel glad to think we have a tremendous big planting in our plant-beds, of this same variety, both once and twice transplanted. We also have plenty of seed of our own saving, for those who care to plant the seed as late as this. Very nice tomatoes may be grown even now by planting the seeds in the open ground.

KILLING APPLE-TREE BORERS WITH BISULPHIDE OF CARBON.

Bisulphide of carbon will surely kill trees if applied to them. Prof. Stedman, entomologist of the Missouri Agricultural Experiment Station, at Columbia, Mo., and also Judge Wilkerson, horticulturist of this State, made repeated experiments of injecting bisulphide of carbon in the ground around the roots of apple-trees for the purpose of destroying the root-louse, or woolly aphis, and in every case where the bisulphide came in contact with the roots of the trees they were killed.

A full report of these experiments is contained in Bulletin No. 35 of Missouri Experiment Station. I enclose a clipping from Prof. Stedman in regard to keeping borers out of fruit-trees. These wooden wraps are made to encircle the tree, and are for sale by a St. Louis firm who deal in berry-box material. WM. H. COMBS.

Will you give a subscriber whose orchard is infested with borers a way to keep trees from the attack of this destructive enemy? J. A. H.

Marshfield, Mo.

REPLY BY PROF. STEDMAN, COLUMBIA.

There are two well-known methods by means of which one may prevent a large percentage of the injury from apple-tree and peach tree borers. The first (and for some reason the best) method is to surround the base of the tree with a wrapper of some sort. For this purpose a common newspaper is frequently used; but where wire mosquito-netting is too expensive one would do better to purchase common wooden wrappers that can be obtained for about $3 00 per 1000. These should be loosely placed around the tree, and pushed into the earth just enough to prevent the insects from crawling under; and the tops should be closed up with cotton to prevent the adults from crawling down between the wrapper and trunk of the tree. These wrappers will also prevent rabbits from injuring the trees. The wrapper should be about eighteen inches high.

The other method is to apply a wash to the trunk of the tree. This wash is to contain some substance that is unpleasant to the insect and will cause it to seek trees not so treated. For this purpose carbolic acid is more often used, and the wash varies in the other ingredients. The simpler the wash, however, the better in most cases. A good wash is made as follows: Two ounces of crude carbolic acid is placed in one bucket of water, and one-half pound of sulphate of iron dissolved, and the whole thickened with lime to make a thick whitewash. This is applied to the trunks of the trees by means of a whitewash brush, and is usually effective when so used in the spring, and again later in the summer or early fall

THE CRANDALL "TREE" CURRANT.

I paid Frank Ford one dollar for one root of the above currant the first year he sold them. Late in the season I was at his place at Ravenna, Ohio, and saw his bearing bushes. They were all he represented as to prolific bearing. As it was necessary for me to move my bush several times it never had a fair chance; but one or two years it has had a fairly good crop. As to the "tree" part, it is no more a tree style than any other currant or gooseberry bush, only as it is trimmed to represent a tree.

THE JAPANESE MAYBERRY, THE STRAWBERRY-RASPBERRY, AND THE LOGAN OR RASPBERRY-BLACKBERRY.

I got some of each of the above last spring. All were very small, in two-inch pots. Of the four strawberry-raspberry, all lived and made a good growth; one set two blossoms in August. One blossom amounted to "nix," the other set and matured one seed. They have come up very thickly this spring, each original plant filling a space of two feet in diameter. One entire plant I dug up and divided into 125. They sucker from the roots, like the red raspberry, and very freely too. My three Golden Mayberries grew to average about 15 inches high, and quite branchy, but winter killed about to the ground, but are sprouting nicely now.

My one Logan made one branch 6 feet, and one 4 feet, the tips of which I put into the ground.

I will give reports on all next fall.

Brooklyn, O., Apr. 19. A. A. FRADENBURG.

A GOOD WORD FOR THE WHITTAKER ONIONS.

The White Multiplier onions, set last fall, were almost a failure—only two or three surviving, set same time and manner with my common potato onion. The winter was very hard on onions, however, the very warm autumn bringing them up to 6 or 10 inches in height; then the January freeze, down to 16 degrees below zero, took them. I expect to lose all. The Whittaker, however, stood the test, and are the best-looking onions I have.

Rugby, Tenn. M. S. PERCIVAL.

The Whittaker onions have wintered again with us the best of any we have ever had except the winter Egyptian. Our stand this spring is regular and complete; and they make the largest onion early in the season (far ahead of the American Pearl in *size*) of any we have ever got hold of. Your experience points a caution. If onions to be wintered over outdoors make too strong and rank a growth they may not winter as well as those planted later. With us the best time for American Pearl, Whittaker, and White Multiplier seems to be just about the time farmers are sowing wheat, or, say, with the *late* sowing of wheat.

NEBRASKA CORN, MUSHROOMS, ETC.

Our Homes is read with much interest, and also your travels and Ernest's. In April 15th issue it seems you do not exactly understand our western way of corn bushels: 56 lbs. of actual corn is a bushel if it is shelled; in early gathering (before the corn is dry), 80 lbs., cob and all; later, as the corn and cob become dryer, 75 lbs. per bushel; and after about Christmas it is called seasoned; and from that on to 70 lbs., cob and corn go as a bushel. Our to-day's market here is, corn, 17 cts.; oats, 15; hogs $3.75 to $3.80; but the cholera took nearly all last fall and winter, and so the corn must be sold at some price. The winter has killed most of the wheat. There will not be nearly enough this year to seed us.

I think if you were here I could feed you on mushrooms that are not poisonous. They are not the shape of a toadstool, but more like a corncob, point end up; in length from 1½ to 5 inches, and diameter ½ to 3 inches. They grow under or near dying apple or oak trees. Yesterday I picked 80 on less area than 16 feet in circumference, under one tree. M. W. MURPHEY.

Cuba, Ill., May 4.

Health Notes.

WHEAT FLOUR CONTAINING A LITTLE RYE, ETC.

Your Notes of Travel are very interesting to me, especially those from the thinly settled country through which I have been traveling. We find but few places for any distance without *some* settlers far or near. What surprised me the most of any thing all over the Rocky Mountains is how they make their living. In some places indeed it is a mystery until you get acquainted with their occupation. Of course, they live more simply, with fewer luxuries and less high style than is fashionable in thickly settled places. Their common food, as a rule, keeps them in good health and spirits, while we live too finely and luxuriously, as well in food as in clothing.

This cracked wheat surely beats the lean meat and hot water all to smash. I believe a little rye mixed with the wheat will make it still better for many people. The other day I rode on the cars with a baker. In our conversation I told him that I had about 400 bushels of wheat, with a little volunteer rye in it, which is rejected by wheat-buyers. I got part of it ground for flour, which we use for our family. We like it better than clear wheat. This baker will buy all I can spare. He told me he had regular customers for such bread—those who are costive naturally—and this bread regulates their system. C. THEILMANN.

Theilmanton, Minn.

Friend T., no doubt the cracked wheat and rye will do very well with many people, without the necessity of lean meat; but where one is badly out of health I would advise him to adopt the lean-meat diet, using just enough of the cracked wheat or rye, or both, to avoid the necessity of using physic. A great many of us, probably, can get along very well without the lean meat. In that case we should thank God that we are more fortunate than some other people.

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are lost by keeping old and poor queens. It ***pays*** big to replace them with young vigorous ones ***early*** in the season, and get a crop of honey with little swarming. I have now untested queens either light or dark Italians—single 75c; 6, $4.00; 12, $7.50; tested, $1.00 up. ***Guaranteed*** to arrive safe at your office, and to be good queens, or replaced free. Remit by M. O. Send for catalog free for particulars. **J. B. CASE, Port Orange, Fla.**

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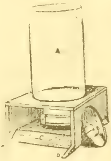

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Look Here! Do you need queens? the purest and best. If so, we are prepared by return mail to ship the 3 band and golden Italians, and silver gray Carniolans, untested, warranted purely mated, for 50c; tested, 75c; breeders, $2.25.
JUDGE E. Y. TERRAL & CO., Cameron, Texas.

Just Arrived!

My second carload of goods from **The A. I. Root Co.** has arrived, and I am in shape to fill all orders promptly at their catalog prices. Send for my 36 page catalog; also send a list of what goods you will need, and I will make you special prices on early orders.

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FOR SALE. **The Great French Strawberry, "LOUIS GAUTHIER."**

The only large fruiting kind that bears on young runners. Old plant fruits in June, making runners which fruit in September. Write for particulars.

ARTHUR T. GOLDSBOROUGH,
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Queens, Either Golden or Imported by return mail. Untested, 75c; Tested, $1.00; Breeders, $2.00. None better.

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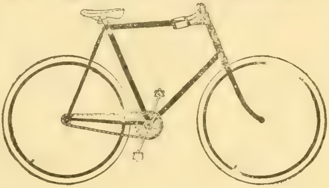

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Hartford Bicycles, Second only to Columbias, **$60, $50, $45.**

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Catalogue free from dealers or by mail for one 2-cent stamp.

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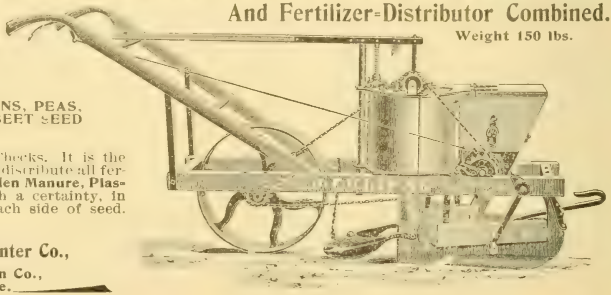
Weight 150 lbs.



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CORN, BEANS, PEAS, and BEET SEED

in Hills, Drills, and Checks. It is the only planter that will distribute all fertilizers, **Wet or Dry, Hen Manure, Plaster, Ashes, Etc.,** with a certainty, in different amounts, each side of seed. Send for circulars.

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GARDENERS! Try Our Specialties.

Hood River Strawberry—best shipping—35c per dozen; $2.00 per hundred, postpaid. Everbearing Strawberry—June till October—40c per dozen; $2.50 per hundred, postpaid. Oregon Yellow Danvers Onion—largest yielder and best keeper known—90c per pound; 5 pounds to one address, $3.25, postpaid. Oregon Hubbard Squash—best yet—$1.00 per pound.

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Root's Goods at his prices in Northern Michigan.

Local dealers supplied at dealer's rates. Goods shipped from Mt. Pleasant, Coleman, or Evart.

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ALL QUEENS

that are shipped from our apiary are to be depended on to produce strong colonies of fine honey-gatherers. We have but the purest Italians, and we take pride in furnishing the best of queens. Tested, $1.00 each; $11.00 per dozen. Untested, 75 cts. each, $8.00 per dozen. Safe arrival and satisfaction guaranteed on every order.

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LOREAUVILLE, LA.

Queens Given Away.

Gray Carniolans and Golden Italians. We will give a fine tested queen (either race) to all customers ordering 6 untested queens, and a fine select tested queen to all who order 12 untested queens at one time. The queens given away will be sent to customers in August.

Grade and prices of bees and queens.	Apr., May, June.	July, Aug., Sept.
Untested queen	.75	.65
Tested queen.	1.50	1.25
Select tested queens	2.50	2.25
Best imported queens	5.00	4.00
1 L.-frame nucleus, no queen	.75	.50
2 L.-frame nuclei, no queen..	1.50	1.00
Full colony of bees, no queen in new Dov'd hive...	5.00	4.00

We **guarantee** our bees to be free from all diseases and to give entire satisfaction. Descriptive price list free.

F. A. Lockhart & Co., Lake George, N. Y.

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Golden,
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Texas Queens.

Dr Gallup says they are the best he has in his yard.

J. D. GIVENS, Lisbon, Texas.

Honey Leaflet, by Dr. C. C. Miller. Why honey is more wholesome than cane sugar; honey as an article of diet; honey cooking recipes. This leaflet is written for the benefit of consumers, and is put out at an extremely low price so that honey producers may distribute them free to their customers. Prices: 10, 5c; 100, 20c; 500, 75c; all postpaid; 1000, 75c; carriage extra.

THE A. I. ROOT CO., Medina, Ohio,

Tested Italian Queens
By mail, in July and August, 60 cts. each.
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For Sale.== Bees and Queens.

Queens, $1.00. Bees by the pound, $1.00. Nuclei, two frames, with queen, $2.50; one frame, $2.00.

Also Barred and White P. Rocks, Silver Laced Wyandottes. Eggs for sitting, at $1.00 for 15.

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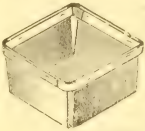

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Bee-keepers' Supplies.

Order your supplies now before the busy season catches you. Price list free. Address

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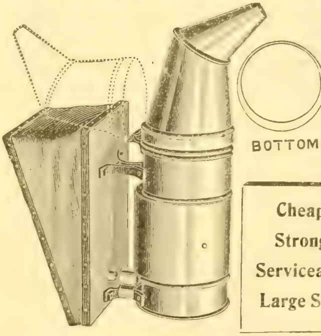
The New Corneil Smoker.



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Large Size.

JUST THE THING for those who want a first-class smoker at a medium price. Size of cup, 3¼ inches; curved nozzle, hinged so as to swing back; legs of malleable iron, secured by bolts. The blast is the well-known Corneil principle. Weight of smoker, only 20 ounces.

Price **$1.00**, postpaid, or **75c** if sent by express or freight with other goods.

THE A. I. ROOT COMPANY,
MEDINA, OHIO.

NUCLEI FOR SALE. Three-frame nuclei on Langstroth frame, $2.25; two-frame, $1.85, with queen.

W. H. STANLEY, Dixon, Lee Co., Ill.

TESTED QUEENS, **The Very Best.** Either 3 or 5 banded Italians—90c each; warranted purely-mated queens, 75c by return mail. My cells are all built in full colonies. Remit by money order.

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FRUIT and ORNAMENTAL TREES, SHRUBS, PLANTS, ROSES, VINES, BULBS, SEEDS

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Seeds, Plants, Bulbs, Small Trees, etc. by mail postpaid, safe arrival and satisfaction guaranteed. Larger by express or freight. 43d Year. 32 Greenhouses. 1000 Acres.

STORRS & HARRISON CO.,
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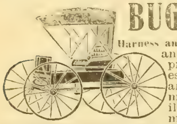

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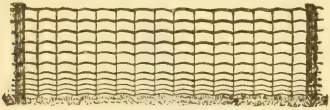

TWO VALUES FOR ONE PRICE.

Every user of Page fence gets full value in the way of protection for crops and stock. Then there is the **satisfaction** in having the **best article** there is made, something durable, something that actually adds value to the premises. Better think of this. Write us and investigate.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

BEES **FOR SALE.** In 8-frame Dovetailed hives, queens from imported mothers. Price **$3.00 to $4.00** per colony.
EDW. SMITH, Carpenter, Ill.

It is here.

The year 1897 is here, and we are happy to inform our friends and customers that we are now better prepared than ever before to fill your orders for queens and bees We have the largest stock ever operated by us, and we mean to be ready with plenty of bees and queens to fill all orders without delay that are sent to us.

Bees by the pound, $1.00; ten or more pounds, 90c each. Untested queens for 1897, $1 00 each in February, March, April, and May; $5.00 for six, or $9.00 per dozen. For larger amounts write for prices. Have your orders booked for your early queens. Safe arrival guaranteed.

Root's goods, Dadant's foundation, and Bingham smokers. A steam bee-hive factory, and all kinds of bee supplies.

The ***Southland Queen,*** the only bee-paper in the South, monthly, $1.00 per year.

Send for catalog, which is almost a complete book on Southern bee-keeping, giving queen-rearing in full, all free for the asking. If you want full information about every thing we have, and the bee-book, don't fail to ask for our 1897 catalog.

The Jennie Atchley Co.,
Beeville, Bee Co., Texas.

Do You Keep Hens?

If so, you want Nissly's Poultry Annual and catalog of "Everything for the Poultry Yard" for 1897, (13th year). It's a pretty book of 72 6x9 pages, finely illustrated and full of information. It illustrates and describes Michigan Poultry Farm and its stock; describes and prices the **biggest** and **cheapest** stock of

POULTRY SUPPLIES

in the U. S: tells all about the New American Incubator and Brooder, the triumph of incubator and brooder manufacture. You need this catalog; it will save you dollars. The book is free, but we request a 2c stamp for postage.

Address
GEO. J. NISSLY, Saline, Mich.
Dealer in "Everything for the Poultry Yard."

AGENTS WANTED.

KILLS ALL BUGS

You can dust one acre of potatoes in 40 minutes by doing two rows at once. No plaster or water used. With this machine you can dust tobacco, cotton, fruit trees, currant bushes, etc. BOOK FREE. Write to
HOTCHKISS BROS.,
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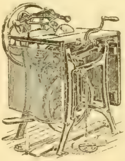
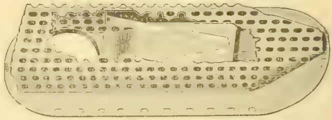


ONE MAN WITH THE UNION COMBINATION SAW

Can do the work of four men using hand tools in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging up, Jointing Stuff, Etc. Full Line of Foot and Hand Power Machinery. *Sold on Trial. Catalog Free.* 1-24ei

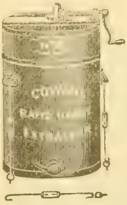
SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N Y

Porter Honey-House Bee-Escape.



Have you seen it? Just the thing to put on the doors or windows of your bee-rooms. Indispensable, you'll say, after you have tried it.

Price by mail, **25** cents.



Cowan and Novice Extractors.

These are the best. We are prepared to furnish on short notice, from any of our several branches, 2, 4, and 6 frame Cowans, and 2-frame Novices.

If you want the genuine, see that they bear our name.

A 36-page catalog sent free on application.

THE A. I. ROOT CO., Medina, Ohio.

SPECIAL NOTICES FROM BUSINESS MANAGER

NO. 2 SECTIONS, OPEN 4 SIDES.

Our friends who order No. 2 sections will, some of them, have to be disappointed unless they can use them open 4 sides. There are very few places where a section open 4 sides will not work just as well as the regular open-top-and-bottom sections. Over in Europe they use at least twice as many sections open 4 sides as they do of the 2 openings. We can supply the No. 2, 4 openings, 2 inch, 1 15-16, 1⅞, 1½, and 7 to foot. When you order No. 2 grade, let us know in order if we may send the sections with 4 openings provided we are not able to supply those with 2 openings in No. 2 grade. If you order from any of our branches or wholesale dealers, advise them as well, if you can use those with 4 openings.

BUSINESS BOOMING.

We never had quite such a run of orders as we are having this spring. If we were no better organized for taking care of so much business promptly than we were in 1890 we should be hopelessly behind. As it is, we are working a man in every available place; and in the wood-working department two turns of workmen keep the machinery going 22 hours out of the 24. In the shipping department there are several who are working 14 or 15 hours almost every day to get orders off promptly. By these extra efforts we are able to keep the goods going out as fast as the orders come in, so that orders do not remain in our hands unfilled very long.

We have shipped a carload of 420,000 sections and numerous other goods to M. R. Madary, of Fresno, Cal., who is the principal supply-dealer in Central California. Another car has gone to Buell Lamberson, Portland, Or., our agent for Oregon and Washington. Two carloads, the fourth and fifth for this season, to Jos. Nysewander, Des Moines, Ia., have been shipped since our last. We have also shipped one to our Chicago branch, and are loading another for same place as we go to press.

We have also shipped the ninth car for export for the season, this one going to London. Wm. Boxwell, of Patrickswell, Co. Limerick, Ireland, is our wholesale representative for the British Isles. He has stores in London, Liverpool, and Glasgow, and has had five carloads of goods of us this season.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

SWEET-POTATO PLANTS.

As we now have an excellent stock we will make the Yellow Jersey and Early Peabody, 25 cts. per 100, or $2.00 per 1000; either of the vineless sweet potatoes, bunch yam, or General Grant, as you choose, 40 cts. per 100, or $3.00 per 1000. If wanted by mail, add 25 cts. per 100 for postage and packing.

BEET SEED FOR MAKING SUGAR.

We are finally prepared to furnish the very best, giving the largest per cent of saccharine matter, and the kind most generally used for the purpose, at the low price of 15 cts. per lb.; 5 lbs. for 60 cts.; 10 lbs. or over, 10 cts. per lb. If wanted by mail, add the usual 9 cts. per lb. extra for postage and packing. We have two kinds.

HAVE YOU GIVEN ALL YOUR FRUIT-TREES A THOROUGH SPRAYING?

Our apple-orchard, and, in fact, all of our fruit-trees, were thoroughly sprayed when the leaves began to show. Then they were thoroughly sprayed again just before the blossoms began to open. The spraying was done with the Bordeaux mixture, with ¼ lb. of Paris green in every barrel. We not only gave the new leaves and blossom-buds a thorough drenching, but we took pains to make the solution run down the limbs and trunk of the tree. The latter I regard as specially important. The limbs and body of our fruit-trees are very perceptibly improved since we began this thorough spraying. The trunks are clean and smooth, and the wood has a thrifty, healthy look. Our currant-bushes were given the same treatment. We expect to spray them two or three times more after the blossoms have fallen. You need not be afraid of rain unless it should wash off the mixture before it gets dry.

THE WET WEATHER.

I do not know how it is with you, friends, but right here we are having a tremendous time in getting our ground in condition. I have plowed one piece to get in some cabbage, cauliflower, and early potatoes when it was too wet. The teamsters scolded, and the horses remonstrated, and I made up my mind I would not try to work ground again when it was in that condition; but the condition has been getting worse pretty nearly every day since; but the cabbages and cauliflower are doing pretty fairly, even if they have not had any cultivating, and the potatoes are coming up pretty well. It is very well to say, "Wait till your ground is dry enough to work nicely." But suppose it gets to be the first of June, and you have not got any thing planted. Our Alaska peas, put in in March, are now a foot high, and we are looking every day for blossoms. The plant-beds are all booming; but that is about the only place where we can make garden at all. Never mind; there will be all the better demand for early stuff when we get it.

POTATOES TO BE GIVEN AWAY.

We still find ourselves with more or less of a stock on hand of all the potatoes in the list below, except Carman No. 3; and for the rest of the season we make every reader of GLEANINGS the wonderful offer that we made just about a year ago. Every one who sends us $1.00 for GLEANINGS, past, present, or future, may select a dollar's worth from the table below; or you may have GLEANINGS for one year for every dollar you send us for potatoes. You can send GLEANINGS where you choose, or the potatoes either. We give the table once more to facilitate making your selection. We have seconds of only the following: Thoroughbred, New Queen, and New Craig. Of these three we can furnish seconds at half the prices below.

NAME Varieties are in order as regards time of maturing, earliest first, next earliest second, and so on	1 lb. by mail.	3 lbs. by mail	½ peck.	Peck.	½ bushel	Bushel.	Barrel—11 pk
White Bliss Triumph	$ 15	$ 35	$ 20	$ 35	$ 60	$ 1 00	$ 2 50
E. Thoro'bred, Maule's*	20	45	30	50	85	1 50	3 50
Early Ohio	15	35		25	40	75	2 00
Early Norther	12			20	35	60	1 50
Burpee's Extra Early .	15	35		25	40	75	1 75
Freeman	15	35		20	30	60	1 50
New Queen				20	30	50	1 25
Monroe Seedling .	12			20	30	50	1 25
Rural New-Yorker No. 2..	12			20	30	50	1 25
Sir William . .	15	35		20	30	60	1 50
Carman No. 1	12			20	35	60	1 50
Carman No. 3 ..	15	35	20	25	40	75	2 00
Koshkonong .	15	35		25	40	75	2 00
Manum's Enormous .	15	35	20	35	60	1 00	2 50
New Craig	15	35	20	35	60	1 00	2 50

Now, even if you do not want the potatoes to plant, in many localities they are well worth the money for table potatoes at this time of the year; and if you have never tasted of a genuine Freeman, I would advise you to have a barrel of these, grown by T. B. Terry, for your table—that is, if you want something *extra*. At the present writing, May 11, they are, the most of them, in almost if not quite as good order as when put in last fall.

MAULE'S EARLY THOROUGHBRED.

This, although not the earliest potato we have, is undoubtedly the best early potato so far as *yield* and *quality* are concerned. All things considered, I believe it has given us the largest yield of any potato we ever planted; and the general decision, the country over, indorses our opinion. Now, in order that everybody may have a chance to get a good start with this very valuable new potato, we make the following exceedingly liberal offer:

A BARREL OF THOROUGHBREDS FOR ONE NEW SUBSCRIBER.

These, of course, will be seconds; but you may have half a barrel of firsts for one new subscriber.

We make these exceedingly liberal offers because we have still a large stock on hand. The Thoroughbred matures so early that you can plant them through the remainder of this month, through June, and even up to the middle of July, and still get a good yield. We hope that none of the readers of GLEANINGS will fail to try at least a few Thoroughbreds.

Our first planting of early potatoes was half Thoroughbred and half Early Ohios. At present writing, May 11, the Thoroughbreds stand head and shoulders above the Early Ohios. Very likely they will not mature the crop as early as the Early Ohios, and judging from the looks and from the experience of last year they will give a yield of about four time as many potatoes. If you have not grown any Early Thoroughbreds, by all means avail yourselves of the liberal terms on which we now furnish them to the readers of GLEANINGS.

THE NEW CRAIG.

While this potato does not give as great a yield in every locality as it does with us here in Medina, I believe it has generally been received with favor. It has been one of the best late potatoes, and we think its power of resisting bugs and blight is equal to any. It is also, perhaps the best potato known for making *vines* to mulch strawberries. In consequence of a large stock still remaining on hand, we make the following liberal offer on Craigs:

For every new subscriber we will send a barrel of firsts, worth $2.50, and for every renewal a barrel of seconds worth $1.25

Perhaps our friends may be interested in knowing just how many potatoes we have at this date, May 15, to be given away to our subscribers. We have the following number of bushels of each kind: White Bliss, 9; Maule's Thoroughbred, 250 (also 300 of seconds); Early Ohio, 23; Early Norther, 4; Burpee's Extra Early, 4; Freeman (Terry's growing), 200; New Queen, 110 (also 120 of seconds); Monroe Seedling, 18; Rural New-Yorker, 15; Sir William, 220; Carman No. 1, 30; Koshkonong, 5; Manum's Enormous, 12 (3 of seconds); New Craig, 100 (70 of seconds)—nearly 1500 bushels in all, as you will notice. All of these are to be given to our subscribers, a dollar's worth of potatoes for every dollar sent for GLEANINGS, as long as they last.

LETTUCE, SPINACH, AND ONIONS.

Lettuce is still retailing at 20 cts. per lb., and the demand is greater than the supply. I tell you it is fun to get a nickel for a stalk of Grand Rapids lettuce before it is fully grown. We have one competitor in our town, and he has quite a good-sized greenhouse. Both of us are sold short. We are cutting ours before it is much more than half grown, because people keep wanting it. Spinach has also brought 10 cents per lb. till just now (May 14); and real nice spinach, grown on extra-rich ground, will bring 10 cts. per lb. now at retail. Of course, our town does not furnish a market for a very large supply of either; but it is refreshing to note that, notwithstanding the low prices on most crops, we have sold more lettuce this spring than ever before, and have obtained a better price for it. I suppose that, as soon as strawberries get to be plentiful, however, people will drop off on the lettuce.

People are calling now for onions large enough to cook; but with the backward spring we have none yet quite the size of hen's-eggs, and it hardly pays to pull them when they will probably double in weight inside of a week or ten days. I see onions are quoted in the cities at $5.00 a barrel. Imported Spanish onions are somewhere about $2.00 a bushel. Now, there is a moral right here: I have never yet seen the time in the gardening business when there were not a few things that commanded good prices. what you are to do is to be on hand with the thing that people are willing to pay a good price for. If by extra care, rich soil, thorough cultivation, and protection, you are able to get a crop a little ahead of the general run, you are pretty sure of a big price.

A BOOK ON RHUBARB CULTURE.

I have for some time been thinking that we ought to have a book on growing rhubarb for market; and I assure you it was a pleasant surprise when I discovered that there was such a one already. It was written in 1894 by Fred. S. Thompson, of Bay View, Milwaukee, Wis. W. W. Thompson & Sons grow rhubarb by the acre. In fact, they have one plantation of several acres, and they sell about 10,000 dozen annually in Milwaukee alone, for making pies. They also make quite a business of growing it in winter, and they even commence putting it on the market for the holidays in December.

One thing I was pleased to learn was to find that, like asparagus, rhubarb must be frozen first, and then thawed out by an artificial spring or a real one before it will grow successfully. This tells us why so many failures have been reported in regard to growing rhubarb in Florida. It can be done successfully, however, by shipping roots south after they have been once frozen up

The book contains several illustrations from photographs pertaining to the industry, that are valuable. The author says, "No reliance can be placed on the seed producing the identical variety of its parent." If this is true, what are we to think of St. Martin's rhubarb, the seed of which is offered by Peter Henderson at $10 00 per lb.?

The book treats of two different varieties in particular—the Victoria, the kind we grow and recommend, and the Mammoth Red. This latter, from the description, we should call much the same thing as a plant introduced years ago as the "wine plant." It was to be grown for making wine; and not only were wonderful stories told in regard to it, but some of our people paid out a "wonderful" lot of money for it, only to throw it away and get back to the Victoria when they wanted *good* pies. I believe several made wine by the barrel; but as it was all soon dropped and forgotten, I judge it did not amount to much as a *wine*-plant; and, by the way, I am heartily glad of it.

This rhubarb-book contains 76 pages; price 50 cts. In fact, that is what I paid for the one I have in my hands. We have, however, made arrangements with the publishers so we we can furnish it to our readers for an even 40 cts., postpaid. The author is supposed to be the largest grower of pie-plant in America. Their yearly output is something like 125 tons of "pie-timber;" and it is estimated that it takes *120,000 lbs. of sugar* to sweeten up the tartness resulting from their plantation.

A NEW(?) PROCESS FOR KEEPING APPLES.

In a recent number of the *Ohio Farmer* we find the following:

WRIGHT'S PERFECT APPLE-PRESERVER.

I have a discovery of incalculable value to apple-growers. For the small sum of fifty cents I will send a printed recipe for the preservation of apples in their natural state throughout the winter. Fruit put away by my method will remain as solid, crisp, and perfect as when picked from the trees. No rot, no shriveling. My method will not only keep your apples safe and sound through the winter, but by its use you can have them for use or market late in the spring when the fruit commands a higher price. This is no humbug, but a valuable discovery that has been tested, and its great merit fully demonstrated. Any person putting away ten bushels of apples for the winter will save money by using my method, which is quite simple, and costs nothing. Send 50 cents for the recipe; try it, and if it does not prove satisfactory your money will be refunded. Address

C. B. WRIGHT, Belmont, Belmont Co., O.

The readers of GLEANINGS, at least the older ones, are well aware of the position that we have taken for twenty years or more in regard to selling information, recipes, etc., for doing something. The above illustrates the point exactly. If Mr. Wright really had something valuable, why did he not sell it to the *Ohio Farmer* folks and let them give it to their readers? He offers a printed recipe. Each reader of the *Farmer*, if he wants it, is expected to send 50 cts.; and yet the whole recipe could be put in the *Farmer* and occupy less space than the advertisement. Besides, what is to hinder the first man who gets it from publishing it to the world, thus saving a large amount of money spent uselessly? We sent the 50 cts. just as soon as we saw the advertisement. Below is the recipe:

RECIPE FOR USING WRIGHT'S PERFECT APPLE-PRESERVER.

In storing your apples, if using either barrels, boxes, or bins, first cover the bottom with two inches of dry sawdust; then place a layer of apples, covering the same with another layer of sawdust of like depth, and so on, alternating each layer of apples with one of sawdust. Leave room at the top for a covering of six inches of sawdust. This will make the fruit perfectly air-tight, and the preservation will be complete. C. B. WRIGHT, Belmont, Belmont Co., O.

I judge that Mr. Wright soon found this method of doing business was not quite satisfactory; for inclosed with the letter was perhaps half a teaspoonful of gray powder. The envelope containing the powder had printed on it the following:

TAKE NOTICE.—Dissolve the powder contained in this envelope in one quart of hot water. Sprinkle a sufficient quantity of sawdust with the solution, and mix thoroughly. The use of the powder is essential for perfect results. The powder dissolved and used with the sawdust as directed will be sufficient to perfectly preserve ten barrels of apples or potatoes.

Parties having already purchased a recipe for Wright's Perfect Apple preserver will be sent a package of the powder to use the next year on receipt of 15 cents and a stamp to pay postage. C. B. WRIGHT, Belmont, Belmont Co., O.

Mr. Wright may be honest—at least I hope he is; but I take the liberty of telling him that the powder he sends has nothing whatever to do with making the sawdust preserve *ten barrels* of apples or potatoes. Very likely he has kept apples nicely by the dry sawdust plan. The method is not by any means new.* Sometimes the fruit keeps all right, and sometimes it does not; but the plan has not been sufficiently successful for anybody to continue using it. This man may be honest, as I have said; but, notwithstanding, his plan of taking 50 cts. from our people at large, especially from our impoverished farming people, is a humbug and swindle, and I appeal to our experiment stations to back me up in what I say. I do not know how many other papers are accepting this advertisement. I know that there are some others besides the *Farmer;* but the periodical that helps to swindle the farmers just now will lose a hundred times more than the small amount it gets for the space occupied by the advertisement. Whatsoever a man soweth, that shall he also reap. Instead of a dozen lines of printed matter on a small card, 50 cts. should pay for a considerable *book*, with appropriate illustrations, in regard to keeping winter apples, or any other rural industry.

KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS, April 1, I consider well worth a year's subscription. ALONZO KNIGHT.
Plain City, Utah.

Mr. Root:—In regard to your footnote to article on "New Celery Culture," pages 300 and 301, we will say the author's full address is Mr. W. H. Jenkins, Sidney Centre, N. Y.
Springfield, O. EDITOR FARM AND FIRESIDE.

I like GLEANINGS very much. I especially enjoy reading Mr. A. I. Root's Notes of Travel and Home Talks, especially through Arizona, as I lived there for five years. MARIA FRASER.
Terminous, Cal.

I received the barrel of potatoes yesterday. They were larger and nicer than I expected to get. The freight charges were 90 cts. Thank you for being so prompt in sending them.
Glidden, Iowa. MRS. M. E. MOFFATT.

Thanks for the very valuable assistance of advertisement in GLEANINGS. It appears the GLEANINGS people are a very pleasant and progressive family; and the surprising thing is, there does not appear to be any other kind of people in it.
Terre Haute, Ind. L. H. MAHAN.

The sections you so kindly forwarded have come to hand, and are very satisfactory indeed. I am surprised to get such good sections for "creams." They are even better than the No. 1 sections made at a local mill or factory, and the dovetails put together fifty per cent better. W. J. MANLEY.
Sanilac, Mich.

The goods ordered Mar. 11 reached me April 1, all right; and to say I am pleased with the manner in which the goods were put up is putting it very mildly. I also find that I can get goods cheaper from the Department Store, after paying freight, than I can at home. Please accept thanks for the careful attention you gave my order. A. E. ROOP.
Estey, Mich.

The car of goods has arrived, and I have been unpacking them. I am very much pleased with the improvements in the hives. Surely the Danzy cover is by all means the nicest I have ever seen. But what surprised me most was the new Weed foundation. I thought sure at first I was 500 lbs. short on foundation, but on opening a large box I found it filled with nice paste-board boxes. I said, "What in the world is this?" I opened one, and was I pleased? Well, I can not find words to express my pleasure. Surely, The A. I. Root Co. leads in improvements in bee-supplies. I now feel sure that whoever gets an order filled with this foundation will be a customer for all time. I have never seen any thing to compare with the packing or the fine appearance of this foundation. J. B. MASON.
Mechanic Falls, Me., Apr. 12.

As long as there is "Our Homes" department in GLEANINGS (I haven't owned a colony of bees in three years) I do not know how I can get along without GLEANINGS. It is the only thing that comes to me now which came to my once happy home away back in Ohio. I then had a kind and loving wife, and nearly a hundred colonies of bees. But continued poor seasons and foul brood (I succeeded in eradicating the latter, however), drove me to other business, and in May, 1893, pneumonia robbed my home of its only charm—my precious darling wife; and, friend Root, GLEANINGS was *one* thing that helped to make my home a happy one, for it helped me to be a better man than I ever would have been had it not been for GLEANINGS; and my wife, too, used to enjoy the Home Papers so much.

I hope you, Bro. A. I., will be spared many years. I am afraid I should lose my interest in GLEANINGS if the time ever comes when there are no more "Home Papers," and I may lose my interest in the bees too; but I hope I shall *never* lose my interest in the risen Lord, in whom you have helped me to strengthen my faith. BASIL T. BLEASDALE.
Shell Rock, Iowa.

A KIND WORD FROM "MERRIE ENGLAND."

My Dear Mr. Root:—I suppose I may call you a brother, not only as a bee-keeper, but as a follower of the Lord Jesus Christ. I must express my sincere thanks to you for GLEANINGS, with many valuable points, not only beewise but otherwise. I lend GLEANINGS to my friends here who are not bee-men, and they are charmed with it, and look out for it as anxiously as I do. I may say, also, I have your A B C, 1891 edition, and consider it one of the most valuable and helpful books I have among my bee-books, and I have over forty volumes devoted to bees and subjects pertaining to bees.

I note in GLEANINGS several articles on foundation with deep cells. Would you kindly mail me at once several samples of some? I am making up a bee-cultural exhibit for our Notts County Show, in June (early), and I should be grateful if you could send me at once a few samples of deep-cell foundation. I used the Weed foundation once last year, and had splendid results. In this district (Nottingham) we have had a trying spring for bees, and in my own apiary spring dwindling has been greater than I have ever known. If the fine warm days do not come soon I shall not have my colonies strong enough to take full advantage of the honey-flow.

Let me also say I join hands with you in your crusade against smoking. I am (*please without egotism*) a local preacher, Sunday-school teacher, Band of Hope worker, and am anxious for any thing to lift up my fellow men and women around me; and I must sincerely thank you again for the inspiration and help I have derived from your Home Talks, etc. I may not meet you on this side; but, dear brother, I will meet you at "the fountain" by and by, in God's good time. With every good wish I remain, dear sir and brother, faithfully yours.
Stapleford, Eng. PETER SCATTERGOOD, JR.

[Many thanks for your exceedingly pleasant words, my good friend S. By the way, it occurs to me that you are rightly named. I have been wondering whether it is because of your name that you have taken up all of this good work. If it were the fashion nowadays to give a man a name according to his habits, we might understand why they should call you Scattergood. I assure you Mrs. Root will value your kind letter, for England is her old home. We have been talking some of visiting the scenes of her childhood; and if we do we shall try to give you a call, dear brother. May God bless and sustain you in your good fight.—A. I. R.]

---

*Other substances, such as bran, oats, cut straw, etc., and dry sand for potatoes have been used successfully in place of the sawdust. Protecting the fruit from the air by wrapping it in tissue paper, exactly as oranges and lemons are shipped, amounts to the same thing. It usually helps to preserve the fruit, but it is NOT a sure thing, by any means.

Root's Goods.

Before placing your order for this season, be sure to send for Root's

1897 Catalog, ready now.

Our 1897 hives, with improved Danzy cover and improved Hoffman frames, are simply "out of sight." Acknowledged by all who have seen them to be a great improvement over any hive on the market, of last year.

Comb Foundation.

WEED NEW PROCESS

Cheaper and better than ever; clear as crystal, for you can read your name through it. Process and machinery patented Dec. 8, 1896, and other patents pending. Samples of the new foundation free.

The A. I. Root Co.,

Main Office and Factory, Medina, Ohio.

Branch offices at 118 Michigan St., Chicago; Syracuse, N. Y.; St. Paul, Minn.; Mechanic Falls, Me.; No. 10 Vine St., Philadelphia, Pa.

Untested Italian Queens.

Queens ready to mail, either golden or dark queens from select stock, at 65 cents each; ½ dozen, $3.50; dozen, $6.50; two or more dozen at $6.00 per dozen. Tested queens 75 cents each.

W. A. COMPTON, Lynnville, Tenn.

Orders filled by return mail or freight for A. I. Root Co's supplies, our choice strain Italian queens; one, two, and three frame nuclei. If you want good goods at low prices and in a hurry, send us your orders. 36 page catalog free.

JOHN NEBEL & SON, High Hill, Mo.

BEES QUEENS Smokers, Sections, Comb Foundation, And all Apiarian Supplies cheap. Send for FREE Catalogue. **E. T. FLANAGAN, Belleville, Ill.**

QUEENS, Either 3 or 5 banded, 75c each; 6, $4.25 Nuclei, and all kinds of supplies cheap. Eggs for hatching B. P. Rocks, 75c. S. C. B. Leghorns, 50c per 13. Catalog free.

CHAS. H. THIES, Steeleville, Ill.

Italian Queens, either golden beauties or 3-banded imported stock. Tested, $1.00 each; untested, 70c each; half dozen, $4.00. One queen to new customer, 65c. P. O. M. O. office, Lavaca, Ark.

E. A. SEELEY, Bloomer, Ark.

Pure Italian Queens.

Fifty cents each. Warranted first-class. No black bees here, and no disease. Safe arrival guaranteed.

W. C. GATHRIGHT, Dona Ana, New Mex.

FOR SALE AT A BARGAIN. **40 SWARMS OF FINE BEES,** in healthiest locality in the South. Address **F. J. ROHMER,** Forest Home Apiary, Grand Bay, Ala.

FOR SALE.—75 Colonies of Italian Bees, in eight-frame Langstroth hives. Price $4 to $4.50 per colony. Discount on five or more colonies.

L. Vandereike, Lake Mills, Jefferson Co., Wis.

Second-hand Bicycles

offered recently have all been sold, but we have two more. One **Remington Racer** (made by the Remington Arms Co.), weight 20 lbs., 1¼-in. tubing; nearly as good as new, and listing $110.00. We offer for **$45.** Reason for selling, A. I. R. expects to ride 1897 model.

One second-hand Victor, '95 pattern; wood rims; wood handle-bars; Morgan & Wright tires. Sold originally for $100 00. We offer for $25.00. It is in good riding condition, having been overhauled in our bicycle-repair shop.

Wax at market price will be accepted in place of cash.

THE A. I. ROOT CO., Medina, O.

FOR SALE.—200 Cases, two 60-lb. cans to case, at 35 cts. a case. I have a large quantity of them: they are new cans, clean and nice inside, but my using steam in storage warehouse caused them to be a little rusty outside. Order 10 cans as sample; speak quick. **WM. A. SELSER,**
10 Vine St., Philadelphia, Pa.
The A. I. Root Co's Philadelphia office.

Wants and Exchange Department.

WANTED.—To exchange Italian queens, bred from imported mothers, for plants, seeds, pet stock, or Cowan extractor. What have you to offer?

J. H GARRISON, Cor. Louisville and
Cheltingham Aves., St. Louis, Mo.

WANTED.—To exchange single-case World typewriter (good as new); also hybrid bees in full colony, for extracted honey or offers.

A. W. GARDNER, Centreville, Mich.

WANTED.—To exchange Pekin ducks or eggs for Italian bees, African geese, or offers.

JOHN BURR, Braceville, Ill.

WANTED.—To exchange a Given press, as good as new, for offers, or any thing useful on a farm.

J. W. H., Bronson, Mich.

WANTED.—To exchange empty L. combs, free from disease, in Hoffman frames wired, drawn from full sheets foundation for sections, shot-gun, foundation, talking-machine, team-harness or offers. C. S. YOUNKIN, Confluence, Pa.

WANTED.—To exchange a 2-horse-power gasoline engine. Wanted—lathe and mechanical tools.

ROBERT B. GEDYE, La Salle, Ill.

WANTED.—To exchange for any thing useful, St. Bernard puppies at greatly reduced prices; also pure-bred Poland China hogs and Pekin ducks.

W. W. PREVEY, Elroy, Wis.

WANTED.—25 second-hand bee-hives. Describe, stating price. E. T. BROCK, Danby, N. Y.

WANTED.—To exchange Belgian hares, homing pigeons, White Leghorn eggs or breeding-stock, for Italian queens from imported mother, pure-bred geese, ducks, or ducks' eggs, or offers.

EUGENE MANNING, Jacksonville, N. Y.

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Honey Column.

CITY MARKETS.

CHICAGO.—*Honey.*—Fancy white, 13; No. 1, white, 11; fancy amber, 9@10; No. 1 amber, 7; fancy dark, 8@9; No. 1 dark, 7; white extracted, 5@7; amber, 5@6; dark, 4@4½; beeswax, 27. Choice comb honey would sell freely at top quotation, as market is bare.

R. A. BURNETT & CO.,
May 19. 163 So. Water St., Chicago, Ill.

MILWAUKEE.—*Honey.*—Fancy white, 12@14; No. 1 white, 11@12; fancy amber, 10@11; No. 1 amber, 9@10; white extracted, 6@7; amber, 5@5½; dark, 4@5; beeswax, 26@27. The trade in honey since our last has been dragging, and demand fallen off somewhat. Our supply of choice quality is not large, and think will all be wanted before new crop. The common grades of comb will be the last to dispose of. Hence the *moral*, improve the quality to a perfect degree, and better sales will follow and better values will accrue.

A. V. BISHOP & CO.,
May 19. Milwaukee, Wis.

ST. LOUIS.—*Honey.*—Fancy white, 12@13; No. 1 white, 11@12; fancy amber, 10@10½; white extracted, in bbls., 4½; in cans, 5; amber, in bbls., 4; in cans, 4½; dark, 3½@4, in bbls.; beeswax, 24½@25. The demand for honey is and will be light from now to the first of October. Bakers and candy-factories not using any this season of the year, and they consume most of our extra stock.

WESTCOTT COMMISSION CO.,
May 20. 213 Market St., St. Louis, Mo.

DENVER.—*Honey.*—Fancy white, 11; No. 1 white, 10; fancy amber, 9; white extracted, 6; amber, 5; beeswax, 25. We are having an unusual demand for our brand of extracted honey. It has been well advertised of late, and our customers know a good article when they use it. There are several brands of honey shipped to our market that are not pure, but we believe all Colorado honey on our market to be pure. The great trouble we have to contend with in this dry climate is granulation. We are looking for a good crop of honey this season.

R. K. & J. C. FRISBEE,
May 22. Lock Box 1014, Denver, Col.

NEW YORK.—*Honey.*—Our market is in good shape—the old crop well cleaned up, both comb and extracted. New crop extracted is arriving from the South, and in fairly good demand at 50@52 per gallon for average common, and 55@60 per gallon for better grades. Beeswax rather quiet at 26@27.

HILDRETH BROS. & SEGELKEN,
May 20. 120-122 W. Broadway, New York

MINNEAPOLIS.—*Honey.*—Fancy white, 12@14; No. 1 white, 11@13; fancy amber, 10@12; No. 1 amber, 9@10; fancy dark, 8@9; No. 1 dark, 7@8; white extracted, 6@7; amber, 5@6; dark, 4½@5½; beeswax, 25@27. Comb honey nominal. Movement very light and will probably continue so during warm weather. Extracted steady demand, moving on new water white at full quotations.

S. H. HALL & CO.,
May 20. Minneapolis, Minn.

PHILADELPHIA.—*Honey.*—White extracted, 5@5½; amber, 4@4½; dark, 3½@4; beeswax, 25. No comb honey in this market but odds and ends. Nobody wants comb honey now. Considerable call for extracted. Beeswax in constant demand.

WM. A. SELSER,
May 21. 10 Vine St., Philadelphia, Pa.

KANSAS CITY.—*Honey.*—Fancy white, 12@13; No. 1 white, 11@12; fancy amber, 10@11; No. 1 amber, 8@10; fancy dark, 8@9; No. 1 dark, 8; white extracted, 5@5½; amber, 4½@5; dark, 3½@4; beeswax, 25.

C. C. CLEMONS & CO.,
May 20. 423 Walnut, Kansas City, Mo

BOSTON.—*Honey.*—Fancy white, 13; No. 1, 11@12; white extracted 7@8; amber, 5@6; beeswax, 25@26. Our market is without change as to price, but we note a lighter demand natural to the warm weather.

E. E. BLAKE & CO.,
May 19. 57 Chatham St., Boston, Mass.

DETROIT.—*Honey.*—Fancy white, 10@12; No. 1 white, 10@11; fancy amber, 8@9; No. 1 amber, 7@8; white extracted, 5@6; amber, 4@5; beeswax, 25@26. Dark comb not much called for, and what there is in sight is not attractive, and buyers of it can make the prices.

M. H. HUNT,
May 20. Bell Branch, Mich.

SAN FRANCISCO.—*Honey.*—Fancy white, 10; No. 1 white, 9; fancy amber, 7; No. 1 amber, 6; fancy dark, 5; No. 1 dark, 4; white extracted, 5; amber, 4; dark, 2; beeswax, 24. New honey of very fine quality is coming in the market. The crop will be a good one, but less than expected three weeks ago. Looked-for late rains did not come.

HENRY SCHACHT,
May 14. San Francisco, Cal.

CINCINNATI.—*Honey.*—No. 1 white, 10@13; No. 1 dark, 8@10; white extracted, 5@6; amber, 4@5; dark, 3¼@4; beeswax, 22@25.

CHAS F. MUTH & SON,
May 18. Cincinnati, O.

COLUMBUS.—*Honey.*—Fancy white, 12@12½; No. 1, white, 11; fancy amber, 8. Strawberries are now arriving so freely that honey is slow sale. Advise no shipments without direct communication with us.

THE COLUMBUS COM. & STORAGE CO.
May 22. 409-413 N. High St, Columbus, O.

CLEVELAND.—*Honey.*—Fancy white, 12@12½; No. 1 white, 10@11; fancy amber, 8; fancy dark, 7.

A. B. WILLIAMS & CO.,
May 25. 80-82 Broadway, Cleveland, O.

FOR SALE.—Fancy extracted in 60-lb. cans, and fancy comb (Danzy sections) mangrove honey in 30-lb. cases. Cash offers wanted, f. o. b. here.
H. PRICE WILLIAMS, Miami, Florida.

PATENTS PROCURED PROMPTLY
AT REASONABLE RATES
By J. A. OSBORNE & CO.,
PATENT LAWYERS,
579 The Arcade, CLEVELAND, O.
CALL OR WRITE. ADVICE FREE.

HALF PRICE.

After June 10th we sell eggs from all our yards at HALF PRICE ($1 per 15). Eggs will be from our best pens, and handled with the same care early orders receive. Our breeds:

Barred & White Pl. Rocks, Lt. Brahmas, Langshans, Bf. Cochins, White Wyandots, Brown & Buff Leghorns, Pekin Ducks.

Our stock will surely please you; order now.

POULTRY SUPPLIES.

We are America's Headquarters. Biggest Stock, Lowest Prices, Quick Shipments.

NISSLY'S POULTRY ANNUAL and catalogue of "EVERYTHING FOR THE POULTRY YARD" is a book of 80 6x9 pages, finely illustrated and full or information. The book is FREE TO ALL, but we request a 2c stamp for postage.

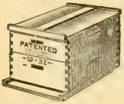
GEO. J. NISSLY, Saline, Mich.

1000 First-class Sections for only $1.50.

I have on hand about 40,000 strictly first-class 4¼x4¼ one-piece sections. For such sections the leading dealers are asking from $2.25 to $3.00 for a single 1000, but I am anxious to turn these sections into money as soon as possible, and also anxious to increase my subscription list; therefore, as long as any remain unsold, I shall offer 1000 sections and the **Review**, to *new* subscribers, for only $2.50. I will also furnish a tested Italian queen and the **Review** one year, to *new* subscribers, for only $1.50; or a Bingham Conqueror smoker and the **Review** for only $1.75.

W. Z. HUTCHINSON, Flint, Mich.

DANZENBAKER HIVE AND HONEY



won Highest Honors at the Fairs, and pays Premiums to purchasers

of 50 hives,	$50	for the best	100	Danzenbaker sections
" 25	" 25	"	" 50	" "
" 20	" 20	"	" 40	" "
" 10	" 10	"	" 20	" "
" 5	" 5	"	" 10	" "

☞ Further particulars regarding the premiums, also special catalog of the Danzenbaker Hive and System, furnished on application. Address

FRANCIS DANZENBAKER, Medina, Ohio.
Care of The A. I. Root Co.

Nuclei--Order Now,

of the old reliable queen-breeder, a 3-frame (Hoffman) nucleus and warranted queen (Italian), that is just running over with bees, for $2.25; or will pay express to any part of U. S. east of Mississippi River for $3.50.

Direct the Philadelphia branch of

THE A. I. ROOT CO.,

Wm. A. Selser, Mgr. **10 Vine St., Phil., Pa.**

Root's Goods at Root's Factory Prices At Des Moines, Iowa.

Immense stock of the latest 1897 goods now on hand, and more to follow.

Thousands of Hives and Millions of Sections is our record, and other goods in proportion. We are sure to please you if the best goods at bottom prices and good service will do it. Eleventh annual catalog FREE. Address

JOS. NYSEWANDER, Des Moines, Iowa.

PRICES OF

Bingham Perfect Bee-smokers and Honey-knives.

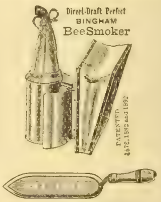
Smoke Engine (largest smoker made.)	4 in. stove.	Doz., $13.00;	each, by mail, $1.50
Doctor	3½ "	" 9.00;	" " 1.10
Conqueror	3 "	" 6.50;	" " 1.00
Large	2½ "	" 5.00;	" " .90
Plain	2 "	" 4.75;	" " .70
Little Wonder (wt. 10 oz.)	2 "	" 4.50;	" " .60
Honey-knife		" 6.00;	" " .80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer, I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

A Penny Saved is a Penny Earned.

Yes, it's better than that, for the saved penny you don't have to earn twice. Well, the **Weekly American Bee Journal** will *help* you save your pennies. It is a real money-saver to the bee-keeper who will read and practice its teaching. The regular price is $1.00 a year, or only about two cents per copy. But in order that *new* readers may give it a trial we will send it **for only 50 cents from the time we receive your subscription to the end of 1897.** Now, the sooner you send the half dollar, the more copies you will receive. Send 1c stamps if more convenient. Sample copy free.

GEORGE W. YORK & CO., 118 Michigan St., Chicago, Ill.

GLEANINGS IN BEE CULTURE

A JOURNAL
DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS

ILLUSTRATED
SEMI-MONTHLY
Published by THE A. I. ROOT CO.
$1.00 PER YEAR
MEDINA, OHIO.

Vol. XXV. JUNE 1, 1897. No. 11

STRAY STRAWS

FROM DR. C. C. MILLER.

THE *Pacific Bee Journal* reports good prospects in California. Glad of it. Some nice people there.

BOKHARA CLOVER probably is not so called because the seed is hulled, but because it comes from Bokhara, in Asia.

BOTTOM BOARDS painted with heated coal-tar 27 years ago are good yet, says C. P. Dadant, in *American Bee Journal*.

REPLYING, Mr. Editor, to your remark, page 361, the extra-thin foundation that didn't suit me was several years ago, so of course it was old process.

EDITOR YORK thinks there is a possibility that, in the near future, bee-keepers might do well to co-operate with the American Fruit-growers' Union in effecting sales of honey.

TOOK FIRST HONEY of the season May 8. Didn't extract—just *shook* three combs, getting two pounds of thin dandelion honey—light, with a very pronounced flavor; liked by some, disliked by others.

R. C. AIKIN is heterodox when he says of hive-escapes, "They will not do the work rapidly enough;" but some others of us can't wait for them at out-apiaries, and don't like to offer a premium to thieves by leaving them on over night."

TREES barked by rabbits can be saved, says Fred Grundy, in *Epitomist*, by splitting open a drain-tile, wiring the two parts together around the tree, then filling up the space with earth. Why not *prevent* the gnawing in the same way?

LE PROGRES APICOLE says the British Bee-keeper's Guide Book has reached its thirty thousandth copy, and that no other apicultural work has reached so large a circulation. *Mais, mon cher Progres*, Root's A B C has about doubled that.

THE MORE STORES a colony has in winter, the less it consumes; for honey is a splendid thermic regulator, making the bees suffer less from sudden changes of temperature, so consuming less. — *Dr. L. Latinne, in Progres Apicole.* [There may be something in this.—ED.]

C. C. PARSONS, in *American Bee Journal*, says that, after a trial of seven years, he has never had a swarm desert its hive, no matter what the shade or ventilation, if he put into the middle of the hive an empty comb, filling out with frames of foundation or starters.

WHAT YOU SAY, p. 371, Mr. Editor, reminds me. Years ago a citizen of Marengo called my attention to some shade-trees four feet high in his yard that he had just got from the nursery. They were lindens, and he had cut down some big basswoods to make room for them. Actual fact!

WATERING BEES. Take a common stone crock; cut a board ½ inch smaller than the diameter of the crock, then bore several ⅜ holes in it, and fill each hole with a wick. Put more boards under it when water-soaked, so as to keep it a little above water level.—Michael Haas, in *American Bee Journal*.

HIT 'EM AGAIN, friend A. I. (p. 387). The idea that a number of sensible people can not meet socially of an evening without eating something unseasonably is an absurdity worthy of the dark ages. But, say! You just report to us when you have a gathering of that kind at your house without feeding them. Dassent!

I'M NOT DIETING now—I'm eating. I never had so much fun in my life eating apples. Three for breakfast, three for dinner. When I don't eat three I eat four or five. Before the beef diet, half an apple was too much for me. [Yes, indeed; the beef diet, after one has been on it for a year, puts him in much better condition to eat articles of food that formerly were almost poisonous.—ED.]

The new Union, since it has turned out there are to be two, needs another name so the old and new Union will not get mixed. "Alliance" has been suggested, also "League." The latter has the advantage of brevity. [I do not like either name. What is the matter with "Association" — the name we formerly had? "The United States Bee-keepers' Association" —that sounds well.—Ed.]

R. A. Tobey, p. 375, gives a fair showing of the variation in the weight of sections. While the average of all was 14⅝ oz., that of the heaviest case was 16.6 oz., and that of the lightest 13.2 oz. Of course, single sections in the heaviest were more than 16.6, and in the lightest less than 13.2. Is it just the thing to sell such sections by the piece, charging as much for the lightest as the heaviest?

Wm. McEvoy, Canada's Foul-brood Inspector, says the Wisconsin foul-brood law is the most perfect one in the world, and one that every State and province should copy after.—*American Bee Journal.* [McEvoy's opinion of the Wisconsin law is worth much, for certainly he ought to know. Perhaps it would be well for bee-journals to hold up this law as the ideal law for other States to enact.—Ed.]

R. Wilkin thinks we ought to have a word to express the contents of a hive exclusive of the box containing the bees. Seems to me there are several new words needed. Who'll furnish them? [Supply-dealers, in referring to that which goes to make the inside of the hive, without the bees, speak of it as "inside furniture," as "fixtures," as "frames and sections." To my notion, the first name is the best.—Ed.]

Supers ought to have been put on my hives the first week in May, according to the orthodox rule, that they should be put on as soon as white wax is seen along the top-bars. Possibly some of them might store dandelion honey in sections, but I'd rather have the honey worked up into bees for the clover crop. [The season is considerably later this year, and we shall have to make our calculations accordingly.—Ed.]

Prof. A. J. Cook, in *American Bee Journal*, says, "We used to hear a good deal about dividing bees, or artificial swarming; but in these latter days I think very few attempt any increase except by natural swarming." Tut, tut, professor! don't think that, because we don't talk as much about it as when it was new, we don't practice it—lots of us. Last year I increased 121, only two of which were natural swarms, and one of them ran away before it was hived.

That good-looking Australian presents a strong argument in favor of queen-cells in drone-comb, p. 365. [Photography always tells the truth, and a half-tone reproduction is the same thing in printers' ink. If friend Jones had told us what he could do, may be we might have disbelieved him; but when he gave us a peep of the thing itself, so that we could actually see it, then there was no room for doubt. I hope many of our readers will try the method there described.—Ed.]

So magic cereal is ahead of postum cereal, is it? First I've heard of it. Can't you send me a sample, Ernest? [Just ask your grocer for it and he will have to get it. It is made, I think, by the Akron Cereal Co., Akron, O.; and while you are about it, ask him to give you a sample of "Gran-o." This is another substitute for coffee, and it is said to go twice as far as any other for the money. We are just trying it at our house, and have not come to any definite conclusion.—Ed.]

Bees stinging each other are generally supposed not to lose the sting. R. Wilkin rescued a queen from hostile bees, but one of them had stung her below the eye; and when pulled apart the sting and poison-sac remained firm with the queen, killing her. [It seems to me that, when I was working with the bees in queen-rearing, whenever a queen was stung in a ball she was more apt to hold in her body the sting she received than not. I remember very distinctly of drawing the stings from several queens, hoping thereby it would not be too late; but they were all fatal.—Ed.]

Prof. Bruner, so favorably known by those who attended the Lincoln convention, has been employed by the Argentine Republic to study the grasshopper plague they've had for ten years. He sailed April 24 from New York, having a year's leave of absence from the University of Nebraska. Success to him. [The selection of Prof. Bruner from the number of very able men in this country, by the Argentine Republic, is indeed a compliment. The bee-keepers who attended the Lincoln convention will not soon forget his very interesting lecture on the "Wild Bees of Nebraska," and the kindly way in which the many questions which were plied to him, right and left, were answered. If I mistake not, his selection was due to the fact that he is a real student of nature. He does not go to other authorities so much as he goes to Nature herself, and from her gleans the actual facts. From a boy up he has been a bug-hunter.—Ed.]

"It would have a tendency to keep others from making the same mistakes if we would be a little more frank in reporting ours," is a truth G. C. Greiner puts on page 367 that will bear repeating. If a department, "Mistakes and Blunders," is published in Gleanings, I'll promise not to skip it in my reading. ["Mistakes and Blunders" as a department in Gleanings—a capital idea! and for fear that I may forget to carry it out, I will ask you right now, doctor, to give us the first batch. They may be short, like Straws, if you want them so, or they may be longer, just as you see fit to touch them up. After you have given us the first batch, then I should be glad to have Mr. Greiner give us the second; later on, perhaps Mr. Doolittle, Mr. Crane, Mr. Manum, and others, can keep the department alive. I am rather of the opinion that some of our best and most successful bee-keepers can give us some interesting and valuable facts from their experience. Such a department may show the truth of what Josh Billings once said: "Egsperience keeps a good skule, but the tewishun comes purty hi."—ED.]

ON PAGE 343 it *reads* as if prosperity never brings a man nearer Christ. You don't mean that, do you? friend A. I. When I'm full of real gratitude for prosperity, I'm sure that is being brought nearer. [Dear old friend, it seems a sad reflection on humanity, but I am afraid it is true that prosperity seldom if ever moves one nearer to Christ Jesus. When I had that pleasant visit at your home some years ago, your pastor said to us something like this: "I presume each person who sits before me would like to take the risk of sudden prosperity; and each and all of you think *you* would be an exception to the general rule. But the sad fact remains, demonstrated over and over again, that there is more to be feared from riches than from poverty." Since I heard that, I have been watching for instances to the contrary; but if I have found them, they are few and far between.—A. I. R.]

UNCLE AMOS, why can't you be fair? You come down on me because I couldn't in four months do what Maria Fraser did in four years —make good jumbles without sugar or molasses. After four years she thinks she has found a recipe that can be relied on, but I don't think I could find it in twice four years on page 375. At any rate, I give it up. Now tell me where to find it. [My dear old friend, I will take back every word I have ever said against you, and I won't ever try to look down on you again if you will forgive my stupid blunder. We went and published the good lady's remarks about that beautiful honey-cake, and told how we manage it, and then left out the recipe entirely. I wonder what Maria Fraser thought of us, to see her recipe come out in that style. But, fortunately, we have succeeded in hunting up the letter, and fishing the recipe out of the waste-basket, and here it is: "Two cups honey; one cup butter; four eggs (mix well); one cup buttermilk (mix); one good quart flour; one level teaspoonful soda or saleratus. If it is too thin, stir in a little more flour. If too thin it will fall. It does not want to be as thin as sugar cake. I use very thick honey. Be sure to use the same cup for measure. Be sure to mix the honey, eggs, and butter well together."—A. I. R.]

Ridge-Pole Musings

By R. C. Aikin.

MARKETING HONEY; A VALUABLE ARTICLE.

This is another subject much written upon and talked about. However much has been said, the subject is by no means exhausted, and comes up at every convention, and will not settle.

Go with me into any grocery and look at the goods there handled. Every thing in the way of liquids, except perhaps vinegar, sorghum, and honey, are so put up that they can be handled by the piece. All solids are either in package form, or in such shape that they can very quickly be weighed or counted out. Vinegar, coal oil, and such, are measured out, it is true; but there is of necessity a vessel in each household for these things, and the vessel is taken to be filled again, when empty. Just think it over for yourself and answer the question: Is there a single article in the grocer's line so awkwardly handled as extracted honey? I have no particular criticism to make in regard to retailing comb honey, but I must say that extracted is very poorly marketed.

We put our extracted honey in 60-lb. cans, barrels, etc., and ship to the wholesale or commission dealer. These in turn sell it out to the retail men in small lots; and when they come to get out the honey they find it candied. Even if it did not candy, it is a hard article to retail in this way, because it must be kept warm or else the dealer must spend much time waiting on it to run out. I have retailed a number of tons of extracted honey, and I know what kind of a job it is. If you were a storekeeper, and had your choice of selling maple and other syrups in regular packages, or honey drawn out into the customer's vessel, would you not choose the regular package? I am sure you would, and that is just what is done.

But how are we to get it into regular packages? There is the rub. We have no suitable regular package—in fact, no regular retail package. The Root establishment is supposed to carry about every thing of value going, and I will just look over their list. First, I find glass vessels. There are the Pouder and Muth jars. One-pound size costs about 4 cents each by the 100. Other glass packages of 1-pound capacity from 2½ cents to nearly 5 cents each. These are the prices *there*, not delivered to the producer. We must pay the freight on these, and then we must be at the expense of casing or crating them in some safe way to ship. The result is, that by the time the honey is ready to go to the wholesale market it has cost us about 5 or 6 cents per pound for packages alone. If the honey is worth 5 and the packing 5 more, there is 10 cents right at your honey-house; and by the time we add freight, and commissions to both wholesale and retail dealer, say 1 cent freight and 25 per cent for commissions, it costs twice as much as the best sugar.

Of tin packages, first comes the 60-lb. can. These are wholesale packages, and cost us, the can and freight, ⅜ of a cent per pound on the honey put in them. Next comes the 12-pound square screw-nozzle cans. These will come at about 1¼ cents per pound—possibly a little more. Then there is the "Jones honey-pails with screw-cap," that the catalog says "are the most convenient pails that we know of, that are suitable for shipping liquid honey in." One-pound size comes at 4½ cents—all of 5 cents by the time we get it; five-pound pails at almost 2 cents per pound. There are next "tin pails with raised covers," but these do not seal, and will not answer. The last on the list is "Record's tight-seal cover pail." These are not made for honey, but for butter and lard. I don't know whether they will shut tight enough to risk shipping honey in them when they are stood on their heads or in any position other than right side up. The cost of these is a trifle less than the others.

These vessels are not crated or boxed ready to ship full of honey. Even if the cost were low enough, every apiarist is not fixed for crating them. By the time we crate them we have put the cost of packages considerably above the foregoing figures—just about what the honey now brings at wholesale in 60-lb. cans and barrels. We can not put honey in packages that cost as much as the honey alone will bring. Suppose the honey worth 4 cts. and the packing 4, then the freights, etc., on that, and "where are we at?" Do not forget that I am not talking about the local retail trade from our honey-houses, but the general markets.

We must have a regular package. We have a standard for comb honey, sections of certain weight, and so many in a case. A dealer can order so many cases of 12 or 24 pound size; and when he retails it he sells it out by the piece or pound, and no bother; but here we are with extracted honey in all sorts of vessels of wood, tin, or glass, some of the packages costing more than the honey itself can be bought for. The only way a retail dealer can get extracted honey to his customers is to get it put up for him by a local apiarist, or buy it in wholesale packages and then repack it, and run the cost to or above comb, or draw it out into the purchaser's pail. If we are to sell to bakers or manufacturers, then the large can or barrel is all right; but we want to sell for table use too. and the purpose of this article is to tell why we do not, and how we can get the table trade.

Extracted honey is not nearly so largely used as it should and would be, because it is not put up so that the people can get it as they do the competitive sweets. I know that Mr. C. F. Muth and some others are doing good work; but Muth can not handle all the honey. What we must do is to get our goods in shape so that, when it is once packed, it is there to *stay till the consumer gets it.* Other syrups and sweets are so put up that the packages are regular, go from packer to wholesale house, and through the regular channels of trade, in unbroken cases till the local grocer gets it, when the case is broken and the original can sold to the consumer.

But how are we to get it so? At present I see but one way. We must co-operate. We can establish packing-houses at suitable places to receive the product in its vicinity. This house (or association) can have its trademark or label; buy its cans in car lots; can, case, and market the goods in a regular way. You will say, "Why not each apiarist pack his own honey, get his cans from the general house, or depot, and pack at home?" The reason why this will not work is plain. Suppose the apiarists about Denver would undertake this. Perhaps no two of them would grade just alike. Perhaps one out of 10, 25, or 50, would either ignorantly or willfully pack a lot of off-grade honey. It would, of course, go out with the rest, and eventually damage the reputation of the association or firm which guaranteed it. No; it must be packed by an experienced packer who knows his business. The farmer may just as well pack his own pork, or the fruit man his own apples; but these and other products must go to the regular packer. We may pack for local trade or special customers, but we can not do this for the general trade.

One difficulty that meets us here is that there is not enough honey produced. There, now, won't I catch it? The idea of saying there is not enough produced when we can not sell what we have! Yes, I say it, and it is a fact. If there were ten times as much produced there would be some inducement for capitalists to start packing-houses, depots, or honey headquarters in every city, so that, when we have honey to sell, we should have a place to put it. Let me illustrate this: I am supposed to be writing this in Colorado; but I am really writing it in Iowa. Well, Iowa is a corn, hog, and cattle country. There are here always corn, hogs, and cattle; and since these things are always here, and in abundance, there are always places to market them. Buyers ride the country hunting up the products. In Colorado, where I live, wheat is the main product, and hogs are scarce. Well, Colorado has its wheat-elevators everywhere, so there is always a place to put wheat; but if you want to market a hog you must hunt a buyer. Now don't you see the point? Our honey is always hunting a market, like the Colorado hog.

Since, then, we do not produce in quantities that will cause the market to come to us, we must take measures to help it to come. We can organize in some way that we may have market-places that take our honey, put it into suitable shape, and find customers. There is all the work of "introducing our goods," that the small producer can not do; but if it were packed in regular cases and weights, so that the traveling salesmen can represent the goods and take orders just as they do for other lines, honey might be sold so as to make a demand that we know nothing about now. Thousands upon thousands who never eat honey would do so if it were to be had as conveniently as maple syrup. I see no reason why honey may not be put up in cheap cans as fruit is now put up. Put up in this way it might go into the homes of the poor people who never see honey. We have been working the fancy trade by the use of glass and other expensive packages at such prices that it must be a luxury, while the poor people and laborers have been left out.

There is yet the question of honey candying, local markets, etc., that will receive attention in our next article.

Loveland, Col.

[This, I am free to say, is one of the best articles we have received this season. It discusses this very important subject of marketing extracted honey, not in the old stereotyped ways, but on lines that are both sensibl and feasible, and I hope every reader will take pains to peruse it carefully.

Before discussing some of the points, I would state that friend Aikin, either because of error in figuring or because he had got hold of an old catalog, has put the price of retail honey-packages too high. The Pouder and Muth jars, in lots of 100, cost a little over 3 cts., instead of 4, as Mr. A. has it. Then there are some other reductions that should be made on the other figures. Square cans, in ten-box lots, cost about ½ cent per lb., for the honey, not including freight, and the same can be shipped from Chicago, St. Louis, or New Orleans. Two-thirds of a cent per lb., including the freight from a locality in Central Colorado, would not be very far from correct. But very few would have to pay such freight.

I grant that the self-sealing honey-packages seem rather expensive; but they are designed for a fancy city trade. Some of the self-sealing devices are patented, and that makes the packages expensive. Perhaps the most popular honey-package is the Mason jar. The 3 lb. size (1 quart) in gross lots, costs about 1¼ cts. per lb., and the consumer rarely objects to the expense of this jar, because it has an intrinsic value in every household. In the case of any other package, with the possible exception of the jelly-tumblers, the package itself is of no particular value after the honey is out of it.

I have said that self-sealing devices made the ordinary screw-top packages expensive. In the case of some, the price is 2 and 3 cts. per lb. Without it, it would be less than half. It has occurred to me, in view of what Mr. Aikin has said in the last paragraph, that we as bee-keepers ought to make use of some standard tin package, such as is used for canned tomatoes, peaches, etc. Fruit-growers have long since come to the conclusion that a 3-lb. tin can, made of light tin, having the fruit itself *soldered* in, is the cheapest of any package they could get. This same 3-lb. package would hold about 4½ lbs. of honey, and would cost the bee-keeper, who bought it in a large way, probably not to exceed a cent a pound for the honey they would hold. But, you say, bee-keepers are not skillful enough to solder these fruit cans when filled with honey. Perhaps; but I know a good many who are. We will suppose, for instance, that Mr. A has bought 500 cans, each can to hold about 4½ lbs. of honey when filled. We will say that he has filled them, and is now ready to have them soldered. I venture to say he can get his tinsmith to solder the whole batch in about one day's time; and the cost ought not to exceed $2.50, or half a cent a can. Honey put up in this shape can be put up in standard packages; and, when neatly labeled, said label going clear around the can, will compare favorably with any other goods on the markets. They can be tipped upside down, any way, and there will be no danger of leaking. I grant that this idea of tin fruit-cans for honey is not new; but I am of the opinion that it has not received the recognition it deserves.

But it would be no very great trick to do the soldering oneself. Soldering-kits are furnished very cheaply now, and the directions that go with them make the whole thing plain. I have known of a number of instances in California where the bee-keepers soldered all their own square cans.

In Mr. Aikin's last paragraph he touches upon a point that is by no means a visionary scheme. The California Bee-keepers' Exchange is organized, if I am not mistaken, for the very purpose of seeking an outlet for the honey from its members; that is to say, it is to take the annual crops of honey from bee-keepers, in the bulk, and put them in uniform packages of various sizes for the general market. Such a scheme ought to be favorably considered by the bee-keepers of the East; and I believe it would be well for the United States Bee-keepers' Union to discuss the matter at its next meeting.

Let us now consider some of the advantages. One large packing-house, or, if you please, several of them, scattered at strategic points, could buy up the honey from bee-keepers in every direction, in the bulk form. If uniform packages were agreed upon, and this honey were put into such packages, with neat labels, and a guarantee of absolute purity, it would do much to help bee-keepers secure better prices. I know of one large under-buyer who mixes his strong-flavored honey with that which is milder flavored, thus making a honey that is both uniform and pleasant. One honey-buyer mixes alfalfa and strong basswood, and calls it "lincerne." The alfalfa alone sometimes has a flavor that is too mild, and the basswood is sometimes too strong. Combining the two makes a flavor that is just right. You see the point is here: A large packing-house could take the honey from several sections of the country, and combine them in such a way as to make one kind of honey of uniform flavor, and thus it would bring a good price. I do not mean to say that buckwheat should be mixed with clover, but that two or three grades of amber might be mixed, *or* two or three grades of white honey, and both the white and the amber would be much the better. I hope this question will be thoroughly discussed.—ED.]

THE W. W. CARY APIARIAN ESTABLISHMENT, COLRAIN, MASS.

W. W. CARY'S APIARY AND BUSINESS.

My father's apiary was established about 1840. Mr. Langstroth was a familiar visitor in my early recollections, and made many experiments with my father when inventing his hive.

My apiary usually contains about 100 full colonies, and in summer is sometimes increased to 300, including nuclei, and has been for 35 years devoted almost exclusively to breeding bees and queens, only a few colonies being run for honey, and these for experimental purposes. My father was the first man to propagate the Italian bee, as you will see by catalog, page 4; also testimonial of Mr. Langstroth, page 45. I have spent considerable money in testing all the different races of bees, and find none but the Italians that seem to fill the bill for all purposes.

I have reared and sold many thousands of queens, and my trade in full and nucleus colonies has amounted to 150 to 200 in a single season.

My mill and storehouses contain over 12,000 ft. of floor space. I have made a specialty of the manufacture of bee-keepers' supplies ever since the invention of the movable-comb system, and have added 2400 sq. ft. of floor space during the past season, including a new room for working wax, 12x50, which is fitted with four foundation-mills and a steam-heater for melting the wax. My father and I bought two of the first mills sent out by A. I. Root, and have used several different machines since. I can not tell you what my annual output of goods is, but will say that it amounts to several thousand dollars annually. W. W. CARY.

Colrain, Mass.

[Mr. Cary, senior, was one of the old pioneers in American bee culture, and one who did much to help father Langstroth in his apiarian career. Some years ago there appeared in these columns a portrait of him, the biographical sketch having been written by Mr. Langstroth himself.

It was a pleasure to do business with the elder Mr. Cary, as it is now with his son, who like his father has been one of our good customers.—ED.]

SOME SPECIAL TOOLS FOR THE APIARY.

SOME GOOD IDEAS.

By George W. Leonard.

I send you models of some tools that I have been using with much satisfaction. When I sold my farm, and apiary of one hundred colonies of bees, I sold all my tools and bee-fixtures. I send you a sample of foundation that was made on a set of foundation-plates that I made. The die-faces are dipped into melted wax, the same as the sheets for other machines are prepared; consequently the septum is formed when the wax is in a liquid state. That leaves the grain of wax in a compact state. When the bees draw the foundation out, it does not expand and bulge as foundation does that is manufactured on machines where it is pressed into shape while in a cold or plastic state. This leaves the grain of the wax in a crumbled form. The bees do not tear it down when not in use.

In making this foundation I use three plates, one of which is engraved on both sides, and the other two on one side only. The plate engraved on two sides is dipped into melted wax, then taken out and quickly laid squarely on one of the other plates, and the third plate is laid on top. The three plates, with the two intervening films of wax, are then run between rolls, the same as in other machines, except that the rolls are not engraved. I then plunge the die-plates into cold water, trim off the edges, and strip off the two sheets of foundation. The plates do not require any lubricant—nothing but pure soft water. Alkali in hard water cuts the wax and makes it sticky. If one wishes to wire the foundation he should wind the wire around the middle plate before it is dipped. I used that machine fifteen years, and made thousands of foundation sheets on it, and it was good when I sold it.

CENTRIFUGAL COMB-FILLER FEEDER.

The model will speak for itself (see Fig. 1). The quantity of honey put into the reservoir regulates the quantity that is put into the combs. To fill the combs full, the reservoir must be two-thirds full. If it is wished to have a large brood-chamber left, fill one-third full. A few turns of the crank of extractor will fill one side. Then open the lids, and with the pliers reverse the combs, and turn as before. Next take out and set over something to drip.

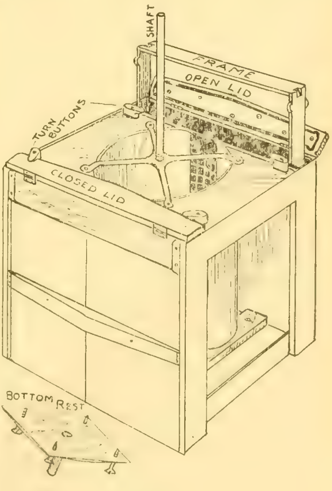


FIG. 1.

Put sticks between to prevent their touching, or it will form a siphon and the honey will run out. If the honey is blood-warm the machine can be worked much faster.

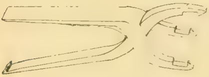


FIG. 2.

The pliers (see Fig. 2) are forged out of Bessemer steel. The wide handle is made for scraping propolis and burr-combs. When dull, file square across the edges. The spurs on the inside of the handles are made for lifting sections and drawing separators out of the hives.

QUEEN AND DRONE TRAP.

I use mica springs for the escape. These being transparent, the bees make more effort to get through than when metal springs are used. Some twenty-six years ago I used metal springs. When you wish the queen to return into the hive, draw out the mica slide that covers the escape, ¼ inch or more. The only objection to mica springs is, that some swarms will nick off the edges until they ruin the springs.

BELLOWS SMOKER.

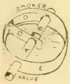


FIG. 4.

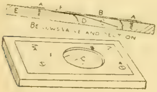


FIG. 5.

I did not send a complete smoker, but only the lower part of the barrel (Fig. 4), to represent the double-action mica valve; also a mica valve for the bellows, on a piece of board (see Fig. 5), to represent its attachment to the outside of the bellows, where it can be easily removed when it needs repairing. I find mica the best material for valves. It is light, and prompt in action, and not apt to get out of order. When you blow with the bellows it presses the valve against the draft-tube (see Fig. 4), and that forces the air out of the nozzle. When you stop blowing, the valve springs back and closes the tube connecting the barrel to the bellows, which prevents the smoke and cinders from going into the bellows.

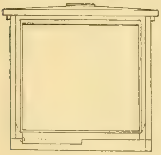


FIG. 6.

I have for a number of years been using an automatic-spacing reversible-frame hive (see Fig. 1). Fig. 6 shows the position of the frames in the hive. The frames are in the package.

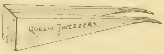


FIG. 7.

The wooden tweezers (Fig. 7) are for picking queens out of the cluster of bees, by the wings. Queens should never be touched with the fingers when it can be avoided. Scent of the fingers causes the bees to ball the queen.

Central Valley, N. Y., Feb. 5.

[Frame-pliers will never become very popular with practical bee-keepers. The bare fingers with perhaps a screwdriver is all that is needed to loosen frames and handle them properly.

The smoker-valve arrangement is quite ingenious, and there may be something in it. We purpose trying it in a sample smoker; and if it works I will report regarding it further.

There may be cases where queen-tweezers may be an advantage, but in my hands I should be more afraid of pinching the queen. The ends of the fingers are about as good as any thing that can be used, at least by the average queen-breeder.

The idea of filling empty combs by centrifugal force in the same way that we extract them is feasible; but any thing that the bees can do for us can be done by them far cheaper. I should prefer to let the bees take the syrup from feeders and put it in the combs. It is a rule in plowing to save the man and make the horses do the work as far as possible. The same should be true of the bee-keeper and his bees.—Ed.]

THE USE OF SWARMERS.

THEIR ADVANTAGES AND DISADVANTAGES; HOW TO CONSTRUCT ONE.

By A. Getaz.

Every once in a while somebody asks me if non-swarmers could be used to any advantage when the apiarist can not be at the apiary every day. If the apiarist can be there twice a week, or at intervals of not more than three or four days, a queen-trap will do as well as a non-swarmer; or even an entrance-guard will do. With the trap there is the advantage of finding the queen there, and also the dead drones, which would obstruct the entrance-guard more or less.

In using an entrance-guard it is necessary that the hive proper should have an entrance the full width of the hive, and at least 1½ in. high. The guard should be not less than 2 in. off the entrance, full width of the hive, and four or five inches high. All this is in order that the ventilation be not obstructed. All this applies also to swarmers and queen-traps.

If, notwithstanding, the colony is too hot, the best way is to add one or two or even more empty supers on the top, enough to bring the temperature down to the proper point. These supers may have sections, or be without them if necessary.

Under no circumstances whatever have any opening above the entrance in order to have better ventilation. In warm weather, when the outside temperature is nearly as high as the inside, they are almost useless, as they ventilate only on account of the difference. On the other hand, during the night and the cool days they create a draft which, under such circumstances, is a positive damage to the colony, especially concerning comb-building in the sections. If the apiarist can be there but once a week or less, then a swarmer or non-swarmer or self-hiver, or whatever name you may call the apparatus by, is better than a queen-trap.

After trying all sorts of contrivances imaginable during several years, the only kind I can recommend is something like a queen-trap with the upper part large enough to admit two or three combs. These need not be full size, except for convenience. The lower part of the upper apartment in front of the cones must be of perforated zinc, partly to allow the bees to go in and out, partly because the cones must be where the light strikes them. Neither queen nor drone will go up a cone placed in the dark.

Well, a swarm issues. The old queen goes up into the swarmer. There she will remain with a certain number of bees, and go to work. The bees of the brood-nest, relieved of the quarreling between queen and queen-cells, or, rather, their attempt to protect the queen-cells against the queen, will also do good work until a young queen emerges. Then the racket starts again; the young queen comes out with a swarm, gets into the swarmer, and kills the old queen. The others follow until there is but one left in the swarmer and one in the brood-nest. This last comes out to mate, and meets the other in the swarmer, and then there is but one left in the swarmer. By that time the apiarist must be on hand, and permit the last queen to mate. Further delay would practically ruin the colony.

When the apiarist comes he will probably find some that have just swarmed, and some that have swarmed or have been repeatedly swarming.

If the old queen is yet in the swarmer, the colony can be divided. If no increase is desired it is necessary to prevent further swarming, to destroy or remove the old queen, and allow requeening. It is not absolutely necessary to destroy all the queen-cells, but yet it is better to do so, except, of course, one or two. At the next visit, only one queen will be there, probably in the swarmer, no brood young enough to raise more queens, and possibly some of the last queen-cells constructed. These can be destroyed, and the young queen allowed to mate.

If a young queen is present, destroy all the remaining cells and let her mate. There is no danger of more swarming if the brood is all capped or too old to raise more queens; and I think there is very little danger, if any, even with young brood, destroyed cells, and a virgin queen; still, I am not positively sure. At any rate, requeening as described above will end the swarming for that year, provided enough room is given in the surplus apartment, even if the brood-nest is not larger than 8 L. frames.

If, instead of allowing the colony to requeen, the apiarist will introduce a young laying queen, it will be necessary to wait until the bees have been two or three days with no uncapped brood. The nurse-bees have not then taken to the field, and there will not be enough of them to construct more queen-cells after the young queen begins to lay.

Two points need consideration here:

Dr. Miller says the perforated zinc will not prevent the queen from going out with the swarm. Well, my experience disagrees completely with his. I have had but one case where I *think* the queen went through the zinc; but in all the other cases where the queens were missing with the swarm I found some crack somewhere, generally in the most unsuspected places. The queen will remain in a swarmer; but with a queen-trap she will eventually (in the course of two or three days) find her way back through the cone; and if she is then killed by a young queen the apiarist may think that she has escaped through the zinc.

Another drawback is this: It may happen that, when a young queen goes to mate, a swarm comes out from another hive, joins the young queen, and the whole outfit goes to the woods, but not often. I once had a young queen that brought the swarm to her own hive. In fact, the young queen will often return to her hive without paying any attention to the flying queenless swarm; yet a few may be lost that way.

The only way I know of to prevent such loss absolutely is for the apiarist to let the young queens mate only when he is present. After a young queen has tried several days to go out, and failed, she is very keen to do it; and if, after one or two o'clock in the afternoon, the apiarist opens the zinc, she will, in nearly every case, mate at once. Should a swarm issue at that time, the apiarist being there could take care of it.

Knoxville, Tenn.

HEATING A BEE-CELLAR ARTIFICIALLY.

OIL-STOVES NOT SATISFACTORY.

By G. C. Greiner.

The closing sentence of Dr. Miller's answer to Mr. Fred B. Cavanagh's inquiry, "Better warm it up some way," is exactly what I should want to do if the temperature of my cellar averaged as low as 35 to 38 degrees; but the question is, "How?"

Years ago I had the same trouble. My cellar was not at that time filled to its full capacity, perhaps not more than one-half or one-third the number of colonies it would accommodate, allowing about 15 cubic feet to the colony. Besides, it had not the outside protection it now has. I mistrusted that, through the colder part of winter, artificial heat would be necessary, and planned to use an oil-stove in the entry.

The latter was a four-foot room, divided by an air-tight partition from the cellar proper. As I had had some experience with oil-stoves before that, I was well aware of the fact that one could not be used in a bee-cellar without being more or less detrimental to the comfort of the bees on account of obnoxious gases and befouling the air. For this reason I took special pains to make the partition air-tight (as I thought), and provided, as an additional safeguard, an extra ventilator, 6 inches square, right over the place which the oil-stove was to occupy.

When the temperature went down to 38 degrees, after it had stood at about 42 the fore part of winter, I lit the stove, which was well trimmed and filled, and the blaze was turned up to where it would give, according to directions, the most perfect combustion, and leave no smell in the room. After six hours (the time that amount of oil is calculated to run the stove) I went to see the effect. On opening the door I found the little room dark, quite warm, and with an offensive oil smell. As the stove went out on account of the oil burning out, I gave the dying blaze the credit of the bad odor, and decided that, thereafter, I would either refill the stove or turn it out before it would have another chance to die a natural death.

The next time I entered the cellar after I had the stove started again, it was still burning at full blaze, but, to my surprise, the disagreeable smell was the same. The bees seemed to be equally displeased. On listening I could hear their roaring through the partition — a decided increase over their natural quiet hum when not disturbed.

Further investigation showed a rise of temperature of 2 degrees in the further end of the cellar, where the thermometer is placed. Now, whether this rise of temperature was caused by the heat of the stove alone, or whether the excitement of the bees had something to do with it, I am not certain ; but I am inclined to think it had. The oil scent had also penetrated the partition, and, undoubtedly, disturbed the bees more than the rise of temperature. I agree with Dr. Miller and the A B C, that stoves in the cellar have done more harm than good.

Since making the above observations I have made but very little use of oil-stoves for that purpose; neither have I tried wood-stoves or boiling water; in fact, I do not need either since finding, by experience, better, cheaper, and safer means for keeping my cellar at the desired temperature. First, better outside protection; and, second, filling the cellar to its full capacity, or, if the necessary number of colonies is not available, reducing the size of the cellar. By these means my cellar maintains an average temperature of about 45 degrees, with a variation of not more than one or two degrees either way.

Naples, N. Y.

[While the A B C does not exactly recommend artificial heat for bee-cellars Dr. Miller certainly does if the temperature goes too low; but he uses a small hard-*coal* stove in the bee-cellar itself, and of course there are no odors because the products of combustion go up the chimney. Oil-stoves, I know, he would not use. A common stove carries away the foul air at the bottom of the cellar, starts the good air circulating, and raises the temperature.—ED.]

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

PREVENTION OF AFTER-SWARMS.

Question.—I wish you would tell us in GLEANINGS how to prevent after-swarming. I know you have written on the subject before, but I can not now turn to it; besides, I wish you to go into the minutiæ of the matter so that "a wayfaring man though a fool need not err therein." Last year I thought I could stop such swarms; but I failed, hence appeal to you. Please give the matter your attention in the first issue for June, as my bees commence swarming about that time.

Answer.—There are various methods of preventing-swarms, such as removing the old colony to a new stand as soon as the swarm has left it; setting the hive containing the new swarm on the stand it previously occupied; cutting off all of the queen-cells but one on the fifth or sixth day after the first swarm issued; hiving the after-swarms in a box on top of the old hive till the next morning after they came out, when they are to be shaken out of the box in front of the old hive, and allowed to run in, so that the young queens will, all but one, be destroyed, etc. Each of these plans has its various advocates. I have tried them all, besides many others put before the public, and not so given; and, after trying the many, have settled down on the two following as being the cream of the whole. I have used these plans with success for years, and use them in accord with what I wish to do with the old colony.

The first is used only where the old hive is carried to a new stand while the swarm is in the air, on the principle of using the new swarm for the main dependence for comb honey, hiving the new swarm on the old stand. To accomplish what I desire, I proceed as follows:

As soon as the swarm is seen issuing from any hive I go to the shop where I get a box or hive used for carrying combs, which has previously been prepared, having the desired number of frames in it, either filled with combs or comb foundation, taking it to the hive from which the swarm came, when the frames are set out of the box near the hive. I now take off the super and take out the frames of brood, putting them into the box. If the combs of brood seem to be well covered with bees, and the weather is warm, I shake a part of them off in front of the hive before putting the combs into the box. If few bees or cool weather, I put all into the box, setting the box in the shade, and a rod or so from the hive, as soon as all of the frames of brood and bees on them are in the box.

I now put the frames brought from the shop into the hive and rearrange it, by which time the swarm will return, if the queen has a clipped wing. If the queen is not clipped, then the swarm is to be hived in this prepared hive on the old stand, the same as any swarm is hived. I next put the combs of brood and bees which are in the box into a hive where I wish the colony to stand, and adjust the entrance to suit their wants, when they are left till the next morning. By this time nearly all of the old or field bees have gone back to their old location, so that the young bees which remain are ready to accept any thing in the shape of a queen.

I now go to my queen-nursery, where I generally have on hand virgin queens just hatched (or if I do not have these I get a ripe queen-cell), and select such a queen as I wish them to have, place her in a wire-cloth cage, and take her to this hive. Upon opening the hive I take out one of the central combs, holding the same up before me. As the bees are all young they will at once take to filling themselves with honey; and while they are so doing I let the queen run on the comb where there are a few cells of honey not occupied with other bees filling out of them, when the queen will commence to fill herself the same as she sees the others doing.

The frame is now lowered down into the hive, and the hive closed. In this way the bees and queen appear natural, and I have yet to lose the first queen put in under such circumstances.

As the bees now find they have a queen, they proceed at once to destroy all of their own queen-cells, so that no after-swarm ever issues —at least an experience covering 15 years says that none do.

The other plan which I use is fully as successful as the above, but is used where I wish to treat swarms the way they are generally treated by hiving them on a new stand, in which case I proceed as follows:

As soon as the swarm is hived I go to the old hive from which it came, and mark on it with a pencil, "Sw'd, 6-10," which tells me at a glance that a swarm came from that hive June 10, should that be the date on which the swarm issued, and the one which was marked on the hive. If it should be another day the date is different; but the plan is the same, and suited to any day on which any first swarm is cast. On the evening of the eighth day from the date on the hive I listen a moment at the side of the old hive; and if swarming has been "according to rule" I hear the young queen piping, when I know that a queen has hatched, and an after-swarm will be the result if not stopped. If no piping is heard I do not listen again till the evening of the 13th day; for the next rule is that the colony swarmed upon an egg or small larva being in the queen-cell, which allows the queen to hatch from the 12th to the 16th day after the first swarm. If no piping is heard by the evening of the 17th day no swarm need be expected. With cool weather and a failure of nectar very few after-swarms issue, or none at all; but with continued good weather and honey-flow, scarcely a colony will fail to try for after-swarming so that, with the bad weather, it is hardly worth while to listen at all. In nine cases out of ten, if the colony intends to swarm, the piping will be heard on the eighth day after the first swarm is cast, so that this listening is no tedious job, for not more than a moment is generally required at any hive. When it is heard, I go early the next morning and take every frame out of the hive, shaking the bees off from each (in front of the entrance) as I take them out, and return them again, so I may be sure not to miss a queen-cell, but cut all off, for we know that there is a queen hatched from the piping which we have heard. Once in a great while the bees will take a notion to go with the queen when she goes out to be fertilized, but such an occurrence is rare, and has nothing to do with what is known as after-swarming.

In the above two we have sure plans for accomplishing what we desire, under all circumstances which may arise, while those spoken of at first will work at times and at others not. The sure plan is to be preferred in the end, though it may take a little more time when doing it.

Heads of Grain FROM DIFFERENT FIELDS.

PROTECTING THE APIARY FROM THIEVES BY AN ELECTRIC ALARM.

I wish to protect my bees from thieves, with an electrical bell, such as you describe on page 266, 1895, but "I don't know" the first thing about putting up the wires. I might fasten them so the current would be grounded, or lose all of its strength before reaching the bell. Will a home-made battery, such as you use for wiring frames (described on page 105, 1895), answer? Does it need three batteries? Will an ordinary door-bell ring loud and long enough to wake a sound sleeper? I can get an electric door-bell for 75 cts. of Montgomery Ward & Co., Chicago; a battery for 50 cts., or the whole outfit for $1.75, including 100 feet of insulated wire, etc.; but this is simply a door-bell, and I don't know whether it is the right outfit or not.

There is a gang of wild boys here who take delight in robbing bees—not only mine, but all over the neighborhood. They took about $3.00 worth of nice white comb honey from one hive last year, and held a grand pow-wow on the corners. I saw honey and wads of wax there the next morning: found out who was there, got the sheriff on track of them, but they denied having any honey or any knowledge of it. I could not prove it in court, or, at least, the prosecuting attorney thought so. No arrests were made, but the sheriff told me he knew I was on the right track, for they all showed guilt when questioned. I have lost honey every year. Sometimes they destroy the whole hive, and I am getting sick of it. I always give them all they want to eat, but there is no "fun" about it then. They like the fun of "cooning" it. I can't work hard all day and watch every night, so I wish to try some kind of alarm to wake me. H. L. Hutchinson.

Mayville, Mich.

[The battery described in Gleanings, page 206, current volume, would hardly be suitable for an electric alarm; that is, it would be too strong and too expensive. The one that you mention, which you can get of Montgomery Ward & Co., including battery, door-bell, and insulated wire, is just about the thing, and the price is very reasonable. The bell should be stationed in your bedroom, and the two wires should attach the bell to a point outside the house. The bell and battery may be in the same room. Directions which go with the outfit would show you how to arrange the bell and battery, so there will be no trouble along that score. But very little wire will be needed. The spool of linen thread, mentioned on page 266, 1895, should be long enough to go clear around the apiary, or the space of ground that you wish to protect from depredations of thieves. As there explained, the thread should pass through eyelets fastened to trees or posts, and should be low enough, say about two feet from the ground, so as not to be seen by those who go into the apiary. As there explained, one end of the thread is made fast, and the other end fastened to a wooden plug that separates the two brass springs forming the two poles of the battery, as explained in our journal, 1895. By following directions there given, together with the directions that go with the battery outfit from Montgomery Ward & Co., I think you will be able to make the thing work all right.—Ed.]

QUEEN-BEES IN THE MAILS; SLIPSHOD QUEEN-BREEDERS.

The monthly Postal Guide for May is before me, and I see in the classification of mail matter that queen-bees are mentioned as admissible when *properly packed*, and this is a matter I think you ought to call the brethren to in big words of warning. Have a notice in every journal, and ask the other journals to do likewise. It is a serious matter, and one that needs attention. A few years ago I was going to write you, but neglected to. I got a queen, sent me from a queen-breeder, in a second-hand cage. The candy was put into the wrong end of the cage; and in place of the cork he used a piece of corn-stalk. It must have dried out, or was too small when put in; anyhow, when I took the cage out of the mail-bag, the queen was nearly out. I just said then I wouldn't have had those bees get out in the mail for a dozen such queens. C. M. Hicks.

Hicksville, Md.

[I am glad you have called attention to this matter, friend Hicks. We can not afford to lose the valuable privilege we now have of sending queens in the mails, by such carelessness on the part of queen-breeders. If there are any queen-breeders who put their queens up in any such manner as above explained, send us the particulars.—Ed.]

HOW BEES CHOOSE A LOCATION SOMETIMES, PREPARATORY TO SWARMING.

On page 293 of the A B C book you say that bees choose a location *sometimes* before swarming. This I know to be true. To-day it was verified. Yesterday, when I returned to the ranch, my brother told me that there was a lot of bees out in the wagon-shed. Going there to see what the matter was I found probably a hundred bees buzzing excitedly around some empty hives that I had tiered up. By dark all had disappeared. This morning I closed the entrance to all but one, the highest, and in the front tier I prepared it with frames of foundation, and left it. This afternoon the hive was taken possession of by a strong colony of black bees. They are not from my own apiary, half a mile away, as I have only Italians and hybrids. John M. France.

Moreno, Cal.

BOARDMAN EXTRACTOR AND OLD COMBS.

Does the Boardman solar extractor take out the wax of old combs near enough so that the refuse is not worth while fussing with, even with sulphuric acid? Gustave Gross.

Milford, Wis.

[The Boardman wax-extractor, if used properly, will get almost every particle of wax out of old combs; but the old stuff needs to be stirred occasionally so as to let the wax out of the refuse. It may take a week, however, for all the wax to run out. The stuff that remains is hardly worth fussing with.—Ed.]

WEED DRAWN FOUNDATION.

A step in the right direction has been taken by our American cousins in the manufacture and introduction of the new "Weed" foundation, which must necessarily mean a saving of time and labor to the industrious insects; and experience has taught us that, where drawn comb is used, bees commence work much sooner. The "Weed" foundation will be especially useful in comb-honey production.—R. Hamlyn-Harris, Bristol, Eng., in *British Bee Journal, March 18.*

BEGINNERS QUESTION

BY E. R. ROOT.

J. M., Fla.—We should be glad to hear from you further in regard to how you cured bee-paralysis; but, as you know, this disease very often goes away itself, and comes back again in some mysterious way which no one can explain. We should be very much inclined to question whether you have a remedy which is infallible.

G. W. M., Pa.—It is the usual rule among some honey-producers to kill all queens over two years old, as it has been found more profitable to do so. Young queens are more prolific, and consequently the colonies are stronger, and strong colonies mean honey; but where a queen-breeder has a valuable queen as a breeder, it is usual to keep her just as long as she will live. as her daughters of the last year are just as good as the daughters raised during the first year.

C. H. P., Neb.—We can not explain why the bees should be robbing the colony if, as you say, it is strong and the entrance contracted so that only two or three bees can pass at a time. Possibly they are black bees. Such bees usually do not make a very good defense. If you can put in a frame of hatching brood from a pure Italian queen, shortly after the young Italians hatch out, they will begin to defend the entrance. Italian bees are very much better than black or hybrid for defense.

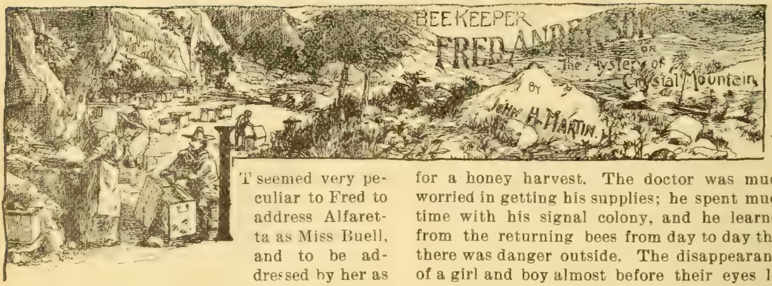
M. D., Ohio.—It will be a good plan to cut out all queen-cells just before swarming-time, before putting on the supers. Some cage their queens at that time and then cut out the cells again. This effectually prevents swarming, and at the same time puts the bees into that condition where they will keep on storing honey in the supers. If the bees swarm out from under the super, you can take the queen out, as you suggest, or you can cage her; but you will need to cut out the cells in about eight or nine days, otherwise they will swarm out as soon as one of these cells hatches. To make sure that you miss no cells, shake the bees all off the combs, and then scan them very carefully, destroying all cells that you discover.

C. H., Minn.—It is quite a common practice to hive two swarms in one hive, especially if both are not quite as strong as the average. Of course, one of the two queens will be killed. It very often happens during swarming time that several swarms will come out at once, and then when they cluster together in one place it is the practice to take out enough to make one swarm and put them into a hive, and then another, and so on until there are as many swarms as originally came out into the air. When they unite in this way there is no fighting; but there is a liability of there being a loss of some of the queens, owing to the fact that one or more queens may get into one bunch of bees and be put into the same hive.

C. P., Ariz.—The only satisfactory way to disinfect hives in which there has been foul brood is to immerse them in boiling water and keep them there for a few seconds. Some have advocated smearing the inside of the hive with kerosene, and then touching a match to it, and letting the fire char the inside out; but this blackens and disfigures the inside of the hive. For further particulars regarding foul brood, see the article under that head in our A B C book.

C. R. B., O.—Twenty-five colonies of bees at $1.00 apiece is very low, and I do not see why it would not be a good bargain for you to take up with—that is, providing you have had experience, as you say you have. You will find very full particulars in regard to shipping bees under the head of "Moving Bees," in the A B C book, which you have just purchased. The frames or combs in the hives should be held securely in position by sticking up, if they are not already fast. It is best to remove the cover of the hive and tack mosquito-netting over the top, or, better yet, wire cloth. The entrance should be closed. The hives themselves should be set upon loose straw in the bottom of the car, with the frames running parallel with the rails of the track. If they are crosswise there is a liability of the combs breaking out when the car bumps against another.

M. B., Texas.—Referring to the short method of transferring, as given in our catalog and our A B C book, I would state that queen-cells, of course, will start in the old hive having the remnant of bees to take care of the brood. If you wish to prevent these from making any trouble at the last shaking out, in about eight days drum the bees out again, cut out the comb, and then destroy what cells may be built. These loose pieces of comb you can put on top of the colony that has been transferred and is in the new hive. When the brood hatches out, remove these pieces of comb and render them into wax; but it will do no harm, ordinarily, to let the cells be completed and hatch out young queens. At the end of three weeks, in this case, drum all the bees out; and if there are any young queens they will go into the new hive. Either the old queen and bees will kill the young queens or else one of the young queens will supersede the old queen. In either case the result will be that only one will be left, all the others being destroyed. When colonies are transferred from *box* hives, the probabilities are that the bees will be blacks or hybrids, and the young queens would not be very valuable.



IT seemed very peculiar to Fred to address Alfaretta as Miss Buell, and to be addressed by her as Mr. Anderson; and, though the familiar face was before him, they were, under the new reign of reason, strangers. Then her voice, her eyes, her general bearing, betokened a sensible young woman. Showing signs of fatigue, Fred persuaded her to retire again to the cabin, and rest, assuring her that the separation from her parents should be looked upon as a providential occurrence; for, had she never been separated from her parents in this strange way, the chances were that she never would have recovered. Now in a few weeks she could return, and surprise her people by the recovery from her terrible malady.

When Alfaretta had entered the cabin, Fred strolled down to the little grove of oaks, and there, an hour later, Dr. Hayden found him in deep thought.

"Fred," said the doctor, "I think I can divine your thoughts. Alfaretta sane is not the young lady she was to you. Remember, all the past must be a blank, and your acquaintance must be renewed from the present."

"Yes," replied Fred, "those were the very thoughts that were occupying my attention. When I thought myself well acquainted with Alfaretta I find that I must commence my acquaintance over again. She is so different that I hardly know how to act in her presence."

"I see," said the doctor. "In her evident desire to seek you, and to be near you, you have allowed your sentiments to get the best of you."

"Compelled, you mean," replied Fred; "who could withstand such loveliness, even though the subject were insane? and now that she is sane, I fear I am unworthy to approach her."

"Ah! well," said the doctor, as he moved toward the cabin, "young people are liable to build air-castles, and tenant them with fairies and angels; but I think you will find Alfaretta very human after all."

The days and weeks sped all too fast for Fred. He applied himself assiduously to the management of the bees; and had he been in any other place he would have avoided Alfaretta; but the narrow confines of the valley made that impossible.

The increase of the apiary was checked, and the energies of the apiary were being prepared for a honey harvest. The doctor was much worried in getting his supplies; he spent much time with his signal colony, and he learned from the returning bees from day to day that there was danger outside. The disappearance of a girl and boy almost before their eyes led the people outside to use every means to solve the mystery. Even the Indians were abused, and threatened with removal to a reservation in the far south. But the mystery remained unsolved.

As Alfaretta became stronger she longingly looked over the cliffs to the south, and entreated the doctor to allow her to return to her home.

"Why, my dear," the doctor would say, "you are not strong enough to endure the hardships of a horseback journey. When I think you can endure it you shall return."

In her tramps around the valley she became familiar with every portion of it. At first Gimp was her leading chaperon. She realized that she had followed Fred to the valley, and, in consequence, was very reserved toward him; but, being passionately fond of flowers, which passion had never left her, even while insane, and finding many new varieties, she would take them to the doctor for the name; and, though he knew the names, he would send her to Fred. In that way they were thrown much together, against their wills, and finally they were taking many twilight strolls together, or singing songs to the accompaniment of Fred's guitar, with evident pleasure.

"Why, Mr. Anderson," said she, one evening, "I find new beauties here every day."

"That has been my experience," replied Fred; "but there is one beauty you have not investigated yet; you should study the wonders of the bee-hive."

"I fear I have as much abhorrence of them as our colored friend Sam has," she replied.

"Well, you ought not to," said Fred; "for it was the bees that indirectly returned you to health again."

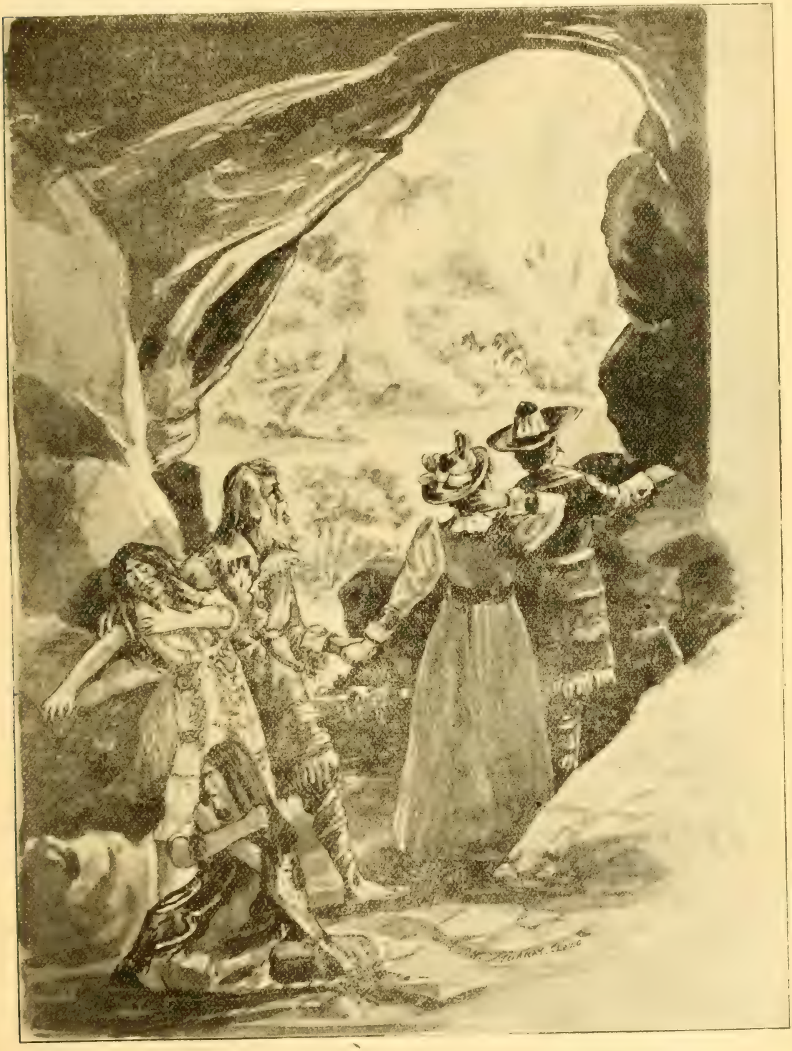
Alfaretta, after much hesitation, consented one day to be veiled and gloved, and then Fred posted her in a safe portion of the apiary, and himself and Gimp entertained their guest for an hour by manipulating the hives before her. From this time she became a constant visitor to the apiary, and, under Fred's kind directions, she soon learned to manipulate a hive herself; and with what pride she related the circumstance to the doctor!

"But didn't you get stung?" said the doctor.

"Why, yes—ha, ha!" she laughingly replied; "a little bee stung me on the finger, and at first I thought Fred was going to kiss the finger; but he changed his mind and stuck a lump of mud on it."

"How could he?" asked the doctor; "but then, mud is a more efficacious remedy for stings than kisses. I guess Fred was sensible, after all."

So time sped rapidly along. The doctor seemed in no hurry to get rid of his patient. She had been in the valley nearly four months, and springtime had well advanced. One day, as they gathered for their noonday lunch, she



"THERE WAS AN UPLIFTING OF THE ENTIRE VALLEY."

returned from the hot sulphur springs in haste, and said, "Doctor, there is a peculiar phenomenon at the sulphur springs. The spring you call the little geyser has disappeared, and there is a boiling mass of black mud all around it."

"That is peculiar," said the doctor thoughtfully. "That spring has held the even tenor of its way ever since I have lived here. I don't understand such an ebullition. It will bear examination."

Then the doctor and Fred hastened to the springs.

"Surely," said the doctor, "she must be mistaken; there is no chance for mud around those rocks;" but the doctor changed his mind when he looked down upon the familiar place, and an exclamation escaped from the lips of both.

"See," said Fred, in alarm; "that rock on which we had our nucleus colonies has been undermined, and there it goes into the seething mass."

"Yes," said the doctor, "that pit is enlarging; there goes another section of rocks."

A puff of steam now belched from the center; and as the wind blew it toward them they were nearly stifled by sulphur fumes. Another large section of rock and earth sloughed off between them and the abyss, and, after a tremor, sank, and hot steaming mud came uppermost. Fred felt the rock under his feet, and found it hot.

"Doctor," said he, "what does all this mean? We are in danger."

"Oh! no, Fred; this is merely an ebullition of an old crater, and will soon subside."

"Don't flatter yourself too much upon that point, doctor; craters have more back of them than we can imagine. I propose that we seek safety while we may, with the precious lives we have here. There," said Fred, in alarm, "goes an area as large as a garden-patch. Dr. Hayden, this very spot upon which we stand is liable to melt away. Hasten, doctor; we must save Alfaretta."

The doctor was loath to go, but followed Fred, who ran speedily toward the cabin, shouting to Sam and Gimp as he ran. When at the cabin he tried to appear cool, and briefly explained the situation; and when the doctor came up it was decided that they take a few valuables and proceed to the upper terrace, near the entrance. The doctor, from his age and experience, viewed matters very coolly; and when Fred thought the very ground under them might sink at any moment the doctor seemed unconcerned, and was the last to leave the cabin. While they were hastening toward the elevator there was an unusual tremor of the whole valley, and the upheaval of mud was greater than ever. The entire lower end of the valley appeared like a steaming caldron. Every one of the little party was now thoroughly frightened, and, with various exclamations, rushed for the elevator. This frail home-made apparatus would carry but two persons, and Alfaretta and Alamantapola were sent up first. While the rest were taking their turns under the doctor's directions there were more seismic manifestations. The surging hot mud was engulfing every thing. The doctor's cabin, recently so pleasant with life, had disappeared. The boiling mud became more violent, the fumes mere stifling. The doctor and Fred were the last to leave; and as Fred was stepping from the elevator there was another violent tremor, and the elevator tackling gave way, and the apparatus, with some rock from above, went crashing down. Fred came near falling with it; but the quick hand of Alfaretta saved him. But what a terrible view was before them! The whole of the beautiful valley was breaking up. The little party seemed spellbound at the fearful scene before them. Fred heaved a deep sigh, and averted his gaze as he saw a portion of the apiary slough off into and under the hot mud.

"All going," said he; "all, all."

"Yes," said the doctor, "all is lost here. We must away;" but in a moment more there were shouts of terror—the passage was closed! The tremors increased in violence. There was an uplifting of the entire valley; hot mud and sulphur fumes were thrown high in the air, and now any moment the little party would be overwhelmed.

The two Indian women commenced the death-chant of their tribe, and all waited for the fatal moment.

By
ER
Root
Editorial

We are trying a smoker having the bellows-boards grooved, as stated on page 372. It adds but a trifle to the expense of the smoker, and is a great convenience to the manipulator of the instrument.

We have just received two lots of imported queens direct from Italy, from two different breeders, *by mail*, and there was a loss of only 4 out of 24. The success of last season, and this so far, would indicate that we shall not have to resort to the expensive method hereafter of obtaining these queens in little boxes by *express*. But in order to attain success we find it necessary to prepare the cages ourselves, and ship them to the breeders in Italy, with instructions to return queens in them.

W. F. Clarke seems to rejoice in being a heretic in theology and apiculture and in keeping out of the beaten track. He believes in sugar honey; that the honey-extractor has been on the whole a curse; he would not join an organization for the special object of prosecuting adulterators, because he believes in producing comb honey exclusively as the best way to meet the adulteration evil.

THE *Nebraska Bee-keeper* has been merged into the *Busy Bee*, with Emerson T. Abbott as editor and proprietor. It is monthly as before, and published at 50 cts. a year. The new series starts out well, for its editor is a practical man of experience. The journal will be devoted to "farm bee-keeping and other minor interests of progressive agriculture." Mr. Abbott is, I believe, employed by the State every fall and winter to deliver a series of lectures on rural subjects at farmers' institutes. If he can throw himself into his paper as he does into his talks his venture will be a success.

IN order to give the membership of the United States Bee-keepers' Union a boost we have decided to give GLEANINGS one year, and a membership in the Union for the same length of time, for $1.75. But in every case the money must be paid in advance; or if there are arrearages, back subscriptions must be paid up to the present, to entitle any one to take advantage of this offer. Or if there are some who feel that they can not afford to pay $1.75 we offer GLEANINGS the rest of this year to new subscribers, and membership in the Union, both for $1.35. On this basis you will get seven months' subscription to GLEANINGS for 35 cts.

PREDICTIONS OF FAILURE AND DISASTER.

IN referring to the attacks that have been made on deep-cell foundation, the editor of the *Review* says he has "*no sympathy* with the extravagant predictions of failure and disaster"—italics mine. He further adds that he has no fears except that the new product may be tough and leathery, like foundation; and while he can see no reason why it should not be so, yet "so long as Mr. Root says that the side walls, after being finished, compare favorably with natural comb, I prefer to wait till I can try it myself." GLEANINGS has no fault to find with this. As one other writer has said, "If the new deep-cell foundation is a good thing it will go; and if it is not, it will not be heard of long." And I may add, malicious attacks to push it down will and have had the opposite effect, for very often the best way to help along a thing is to fight it tooth and nail.

OTHER MACHINES FOR MAKING CONTINUOUS WAX SHEETS.

SINCE the advent of the new Weed continuous-sheeting machinery, it would appear that two or three others are trying to make machines for making continuous sheets. One party employs a large wooden wheel, the rim of which revolves in a vat of melted wax. While continuous sheets *can* be made in this way, and have been so made for years, they are nothing but dipped sheets, or what we now style "old-process wax." We have seen samples of wax sheets made in one of these machines, and they are identically the same in texture and quality as the old dipped sheets. The Weed sheeting machine not only turns out continuous sheets, but produces a wax of superior texture and quality—tough, pliable, and translucent.

MARKETING HONEY.

AFTER preparing the footnote to Mr. Aikin's article, found in another column, the *Bee-keepers' Review* for May comes to hand containing an editorial something in the same line on the Fruit-growers' Union. After mentioning the fact that the California Bee-keepers' Exchange expects to work in coöperation with it, the editor goes on to explain the working of the Fruit-growers' Union. This is what he has to say:

> To their sorrow, many growers of perishable fruit, like berries, tomatoes, peaches, and the like, know that a glut in some market so reduces prices that the fruit does not sell for enough to pay the freight and commission. At the same time, within less than 200 miles, the same kinds of fruit may be selling at good prices. The trouble is not that too many strawberries are raised, but that the distribution is unequal. They are often massed in a few points. The grower writes to the commission man, and receives a favorable reply. He ships his fruit; but hundreds of growers have done the same thing. The tendency is to ship to central points like Chicago or Cincinnati, and neglect the smaller towns. The great object of the Fruit-growers' Union is to prevent this massing of products. It has agents scattered all over the United States, and these agents are constantly reporting to headquarters the condition of their respective markets. In the case of perishable products, or whenever the case demands, the telegraph is freely used. Reports are also constantly being received in season regarding the condition of the crops. The General Manager knows, for instance, all through the strawberry season, where the berries are being grown, when they are ripening, how they are are "turning out," etc. He also knows where they are being sent, and is promptly notified if there is any tendency towards a glut in the market, or if any market is needing more berries than it is receiving When a grower is ready to ship, he notifies headquarters by telegraph, saying how many berries he has, and is at once notified by telegraph where to send his berries. The Union has absolute control of the product of its members; and so closely are the markets watched that a shipment is often diverted after it has been started. For instance, it started for Chicago; but while on its way, notice is received that there is a glut in Chicago, while Jackson, Mich., is "short." By means of the telegraph the shipment that started for Chicago has its route changed to Jackson.
>
> Ten per cent of the proceeds is retained as commission; but at the end of the year (I think it is), if it has not cost ten per cent, then there is a rebate. In other words, a member has to pay only what it actually costs to sell his product, and he has the satisfaction of knowing that his product has been sold in what was, in all probability, the best possible market he could have reached.

That one central organization such as the Union is able to prevent a glut in any particular market, for the very reason that it has facilities for surveying the whole field at once, even calling to its aid the telegraph, is a big fact. It is high time that bee-keepers were keeping up with the fruit-growers; and GLEANINGS will cheerfully give space to a thorough discussion of the matter.

THE THREE STAGES OF AN INVENTION.

AN eminent judge has said that nearly every successful invention has to pass through three stages. First, the invention can never be made a practical possibility; it had better be let alone. Second, when its practical success is assured, "nobody wants it — it will work harm rather than good." Third, after it has passed these two stages, and it is shown to be a good idea, and everybody wants it, then the cry is raised, "It is old; it was in use before; it is common property." The new Weed drawn foundation has now passed the first and second stages. First it was said that foundation with deep cell walls as thin as or nearly as thin as natural comb could not be made; but now that it can be made, it is argued that it will be "ruinous to the industry." If history repeats itself we may soon expect the third stage.

TAMING APIS DORSATA AND SEMINOLE INDIANS.

THE following note, received from Mrs. Harrison, will explain itself:

> *Mr. Editor:*—I hope you will succeed in introducing *Apis dorsata* into this country. You appeared to think I was poking fun when I recommended turning them loose in the everglades of Florida, among the Seminoles. The everglades are like lakes dotted with small islands, covered with a semi-tropical vegetation. Wouldn't dorsata feel more at home there, in that warm climate, with its large flora, than in Medina, Ohio?
>
> If you ever succeed in getting them alive to this country, take a few of them to Biscayne Bay, Miami, or Fort Myers. You could put in your winters in taming them and the Seminoles together, and tell us all about them. Teach the Indian children on Sunday, and dorsata to live in a hive on week days. You might succeed in making the price of honey and wax so low that the adulterators will have to take to the woods.
>
> Peoria, Ill. MRS. L. HARRISON.

If we succeed in getting these bees over to this country we will send our Mr. Root senior down to Florida to see what he can do to tame *Apis dorsata* and the Indian children in that far Southland.

CORK SOLES FOR USE IN THE APIARY.

FOR a few months past I have been wearing thick cork soles on my shoes. Instead of finding them clumsy, as I feared they would be, they are the easiest shoes I ever wore, and, moreover, they seem to be proof against wet and damp sidewalks. Usually, when going out into the apiary with thin-soled shoes, in walking in damp places the soles would get soaked through, and the result would be damp feet. This spring I found that, with these cork soles, I can go all around in damp places, and my feet keep dry—almost as much so as if I were wearing rubbers. Rubbers are all right; but for one who goes in and out of the apiary, as I do, they are never on when I need them the most; and these cork soles are ready for all kinds of weather.

Oh, yes! I also wear pointed toes, and I consider them a great comfort. The point forms plenty of room and air for the great toe. Put me down as in favor of thick cork-sole shoes with pointed toes, A. I. R. notwithstanding.

DRAWN FOUNDATION AS VIEWED BY ANOTHER EDITOR.

IN the last issue of the *Southland Queen* the editor speaks very hopefully in regard to the new deep-cell fonndation. This is what he has to say:

> We have received samples of the Root deep-cell foundation, and it is as nice as any kind of foundation we have seen; and, while we have not tried it, on account of a honey-dearth being on ever since it came, we do believe it will prove a boon to the extracted-honey producers, if not to the comb-honey raisers. We have had a flow on three days; and as we have been shipping a great many bees lately, we are scarce of combs, and we now ask a question: "Who will be able to tell us what drawn combs or deep-cell foundation would be worth to us just now?" Yea, who can estimate it? If we had this comb to use in 200 strong colonies to-day we should likely get ten to twenty tons of honey in the next ten days, while, as it is, the flow may come and go before the bees can build comb to store the honey in.

A little further on, in the same editorial, referring to the attack upon the article elsewhere in the same journal, the editor says:

> On page 15 of this issue, Bro. Hyde puts forth the idea that this drawn comb is a fraud. Now, while it may look a little as though it would injure the sale of comb honey, how can it be classed as a fraud? As a rule, frauds are something that get our money without an equivalent, and this deep-cell foundation will be sold, we suppose, in the same manner as other foundation to those who wish to purchase; and, as one good friend says, "If this deep-cell foundation is a good thing it will go; and if it is not, it will not be long heard of." We think that is just it to a T, and we have no right to be kicking until we have something to be kicking at, and this is just why we have kept as still as we have.

QUEENS IN THE MAILS.

A SHORT time ago you may remember I reported, from information which seemed pretty straight, that there was a movement on foot in the Postoffice Department to bar queen-bees out of the mails. The United States Bee-keepers' Union promptly took the matter up. General Manager Secor wrote to the department, asking if there was any truth in the report, and received the following letter, which will explain itself:

> POSTOFFICE DEPARTMENT.
> OFFICE OF THE GENERAL SUPERINTENDENT RAILWAY MAIL SERVICE,
> WASHINGTON, D. C., May 14, 1897.
>
> Respectfully returned to Mr. Eugene Secor, Forest City, Iowa.
>
> There must be some mistake about this matter, as no one at the department has any knowledge of a change of the regulations excluding queen-bees being contemplated. JAMES E. WHITE,
> General Superintendent.

This settles the matter. While it did not seem possible that queens should be excluded from the mails, it seemed to be advisable to be forewarned and thus forearmed. The privilege we enjoy of sending queens in the mails is so great that we can not afford to take any chances. In another column there is a case of carelessness reported on the part of a bee-keeper who ought to be severely reprimanded by the whole fraternity.

J. VAN DEUSEN.

In our issue for May 1 appeared an obituary notice of Mr. J. Van Deusen, senior member of the firm of J. Van Deusen & Sons. Mr. V. was 83 years old at the time of his death, and one of the veterans in the bee business. For years the firm with which he was connected has been noted for turning out a beautiful translucent, flat-bottom foundation. The old gentleman had a secret process of sheeting, and by this process he was enabled to turn out a beautiful article of foundation.

Mr. Van Deusen's face was quite familiar to those who were in the habit of attending the national conventions. One would hardly think that a man of his years could make as long journeys as he did, and yet seem to be hale and hearty, notwithstanding his age, at all the conventions at which we had the pleasure of meeting him. He always had with him samples of his goods, both wired and unwired.

He is the only one, I think, who ever, in a commercial way, incorporated wires into the foundation itself, the wire being inserted, evidently, in the process of milling. It is doubtful whether the wire could be inserted in the natural-base foundation. It *could be* put in, but would be kinked up by the faces of the mill, so as to make it practically a rail fence that would stretch as much as the foundation itself.

J. VAN DEUSEN.

The firm is still operating, the younger member, I believe, having charge of the business, and I have no doubt the quality of goods will be up to its former high state of excellence.

It is a pleasure for me to state that the half-tone portrait is very natural, and will be instantly recognized as such by all who have had the pleasure of meeting the senior Van Deusen at the various conventions.

A HONEY-LEAFLET IN ENGLAND.

A little pamphlet entitled "Honey and its Uses," by Rev. Gerard W. Bancks, is being circulated, as I judge, among honey-consumers in England. There are several good things in it, and from among them I make the following extracts :

> Apart from the consideration of the many other valuable properties claimed for honey, the following facts, which seem well authenticated, must certainly go far to recommend its use as an article of food:
>
> 1. The sugar of honey, being in the most suitable form for assimilation, requires hardly any digestion. It is in a condition to enter at once into the system.
>
> 2. It is, in a usual way, not liable to occasion any disorder of the system, and may therefore generally be used by those with whom ordinary sugar is found to disagree.
>
> 3. The grape sugar of honey does not cause decay of the teeth as cane sugar does.
>
> These statements, of course, have reference only to honey that is absolutely *pure*. Erroneous opinions, and much mistaken prejudice, have unfortunately arisen with regard to the use of honey, owing to the unpleasant effects upon many persons of the various compounds, consisting chiefly of glucose made from potatoes or rice, and sulphuric acid, which of late years have been in such large quantities sold as a substitute for pure honey. It is of the greatest importance, if its beneficial effects are to be enjoyed, that the honey consumed be pure.
>
> Till comparatively recent times honey was the chief sweetening agent in use. After the introduction of cane sugar, however, the use of honey in this and other countries largely declined. But there is no doubt that of late years it has been more and more realized that pure honey does possess qualities which it is impossible to replace. There has been a larger and ever increasing demand for it, till there seems every prospect of its coming again into general use in every household. Thousands of tons of honey are now annually consumed in this country; while in North America alone, it is estimated that more than a hundred million pounds are produced every year.
>
> But it is not only as a palatable and nourishing food that honey has again come to be so highly appreciated. It is now pretty generally acknowledged to be a really valuable medicine. And when we bear in mind that the nectar gathered by the bee is a secretion in which we may expect to find the essential virtues of the plant from which it is obtained, that there is more or less pollen always present, and that, when converted into honey, it contains, in addition, a certain amount of formic acid, we can easily account for its wonderful medicinal properties.
>
> Honey is especially recommended as likely to be beneficial in cases of dyspepsia, rheumatism, asthma, hoarseness, shortness of breath, and all affections of the chest. Consumptive people are known to have derived great benefit from its continued use, and it is said to have been recently often used as a substitute for cod-liver oil, with very satisfactory results.
>
> In bronchitis great relief may be obtained by taking a small quantity at frequent intervals. The regular use of it is said to aid digestion, and to strengthen the nerves. As a gentle laxative, and purifier of the blood, no better medicine can be taken; while its peculiar acid property has caused it to be generally recognized as a valuable medicine in cases of sore throat. Indeed, for coughs, colds, and all affections of the throat it is universally acknowledged to be the best of remedies.

NOTES OF TRAVEL

BY A. I. ROOT.

Owing to the unusual amount of wet weather I did not get off for a wheelride this spring until yesterday, May 18. Once more I passed through that remarkable experience of a long wheelride. For some time back I have been troubled with my old chills. I have been wearing my overcoat and fur cap. In fact, I debated some as to whether I should not take my overcoat along when I started out for my ride. For some days back I have been getting so tired before noon and before night that I really began to question whether I had strength enough for a long ride. A good nap of about an hour before dinner, and another one before supper, had helped me to get along and look after my appointed part of the work. Well, I decided to leave my overcoat at home, even though I felt chilly for the first four or five miles. I not only felt chilly, but began to get tired; and had it not been for my previous experience I think I should have turned around and gone back home and given it up, thinking I was too old and too much out of health for any such hard exertion. After I had gone about ten miles, however, I was singing my old hymns, and thanking God for the "second wind" that was beginning to thrill my whole being. When the usual time for my nap came I felt unusually wide awake; and in an hour later I was in excellent trim for a good dinner which I found at a hotel on my route. I rode the last ten miles in my shirtsleeves, with my coat tied to the handle-bar, and I wished several times I had one of my summer hats instead of the fur cap. I made about 30 miles easily, and arrived home just in time to take charge of the boys, and worked hard until supper-time, with no thought of a nap, and then helped to push some other work that needed to be done, until well toward sundown. Then I slept a good hour as only the tired laborer can sleep, and had an excellent night's rest after that. During the latter part of my ride I chose an untraveled road because it was shorter, and this threw me into a good perspiration. After I arrived home I drank as much water at intervals (from that new soft-water well) as I drink ordinarily in a whole week. To-day I am feeling very much better than if I had not taken any ride at all.

But most of my readers, I suppose, know all about this. Wheels are now so common that it is hardly worth while to go over such experiences, and I have given this mainly for the benefit of the elderly ones who think they are getting to be too old, or that their health is too poor for such youthful sports. Perhaps some of you wonder why the craze for wheeling holds out, and increases to such an extent. Well, I suppose it is for the reason I have just given above.

At the Creston celery-farm I found my friends all busy; and expert women were swiftly transplanting the little seedlings into boxes, on the plan I have several times described. These boxes were then put in the hot-beds outside. And, by the way, this perhaps quarter of an acre of hot-beds and cold-frames is a sight indeed. I wish I might give you a photograph of it. It reminded me of the chapter in our tomato-book, about supporting a family on a quarter of an acre. Mr. Jordan says this quarter-acre would keep a pretty good-sized family busy several months in the year. Some of the beds are covered with cloth, and some with the glass sashes. All of the glass is, however, whitewashed at this season of the year. The greater part of the beds have pipes underneath them for steam heat; but this spring they have added a new block without steam heat. These answer every purpose a little later in the season, or they will answer earlier for hardening off plants that are pretty well rooted. By keeping the beds damp with plenty of water and a cotton-sheeting covering, they make them stand up from the day they are planted until they are ready to go out into the field. In fact, I saw one bed full of plants put out only yesterday, and every leaf stood up apparently full of life and health—no hurt from the transplanting process whatever; and yet when the plants are taken from the seed-bed the soil all drops off, and nothing but the naked roots are put into the boxes. This speaks well for their compost of swamp-muck and well-rotted manure.

It seems to me I never saw such beautiful beds filled with boxes of plants. These boxes are lifted into a wagon made for the purpose, and carried right out into the field; and their arrangements were so complete that it did not seem to me as if there was a missing plant in ten thousand. Each plant has a great bushy root, and in fact this bushy root carries along a goodly lump of the compost contained in the box in which it grew. This compost is swamp muck, two parts, old well-rotted manure one part, thoroughly commingled.

Before I got in sight of the grounds I broke forth in an exclamation of surprise. Yes, I have done this a good many times at the beauty of these newly planted celery-fields, but *this* time there was a new surprise. Off in the distance there was something more enchanting than any thing I had ever seen before. It was a whole block of *five acres* devoted to the new celery culture. The Jordan Brothers, however, have modified the process somewhat, so as to fit appliances of their own. The plants were spaced at an exact distance of 3½ inches apart in the row, and the rows were a foot apart. This spacing is all done by appropriate machinery. The rows run crosswise of the beds, and they are just 15 feet long. Then between the beds there is an alley or driveway wide enough for a narrow-tracked wagon. This driveway is to carry in the boards, and to afford a place for the workmen to stand as they handle the boards and place them up against the rows of plants. It is the "new celery culture," but they use boards for bleaching. They say they do not get any real nice celery without the boards. Now, with the rows 15 feet long, and the boards 16 feet, a man in each alley can place them without tramping on the plants at all. You see they have my idea of plant-beds so the ground need not be tramped down hard. They use about 24 tons of good stable manure to the acre, besides a large quantity of bone-dust, and ashes or potash in some other form.□

The variety used almost exclusively is the Golden Self-blanching; and it was this golden color that caught my eye. No flowering plants ever grown by florist were so handsome to my eye as that block of five acres. It looked as if a gorgeous sunset had blazed down for a moment on that little square block of swamp muck. What astonished me was to see each plant so exactly like its neighbor; and there they stood, thousands upon thousands — no failures, no weak puny plants. Mr. Jordan put down his hand and pushed away the muck to let me see the great masses of snow-white roots that were reaching out for food and drink.

I took a new route home. In my wheelrides you know I always take a new road when I can. Constance says this is so I shall get lost and have some adventure. I did not get lost this time. I did, however, run across another celery-ranch. A bright gleam of color caught my eye from a sort of plant bed or greenhouse. This bit of color was Grand Rapids lettuce. It was still standing in the seed-bed; but its cotton-cloth covering had bleached it so it had that fascinating light green, almost white. I asked the young man who owned the ranch if his lettuce-plants were not getting pretty tall. He explained that they cut off the tops with shears, and used or sold the lettuce, and then waited until the roots had started again, producing much the same result as transplanting, with less expense. This man had an engine to warm his beds and pump his water, and a lot of iron pipe to carry the water all over his little farm. He has not got his drainage quite as perfect yet as the Jordan Brothers, but I think he will make a success of it eventually. In drilling for water he struck a flowing well—at least the water boils up over the top of the iron pipe, and runs away. The water rises only a little higher than the level of the surface water in his ditches.

Further on I visited the onion-farm of Mr. Barnhart, and found him using one of the Breed weeders I illustrated in our previous issue. Excessive rains prevented him from using the weeder so as to kill the weeds before they were "borned;" but his men were at work with wheel-hoes and weeders, getting his patch ready so the weeder would do the work for the rest of the season if we are not drowned out by too many heavy rains. If the price of onions will only hold up to $1.50 a bushel or $5.00 a barrel, what a picnic we shall have when marketing time comes! and, as usual, I expect to have American Pearls and Whittakers on the market before anybody else has any thing large enough to call an onion.

OUR HOMES.

And it came to pass the same day, that Isaac's servants came and told him concerning the well which they had digged, and said unto him, We have found water.—GEN. 26:32.

And whatsoever ye shall ask in my name, that will I do, that the Father may be glorified in the Son. —JOHN 14:13.

That whole 26th chapter of Genesis has always been interesting to me because it has so much to say about digging wells. In my earliest childhood I was greatly interested in wells and springs, especially the soft-water springs round about my hilly home in Mogadore, Summit Co., O.; and I soon learned to enjoy drinking the pure cool water from certain springs; and when away from home, where I was obliged to drink hard water from wells, I always found it quite a cross. In view of this it is not strange that, when the oil excitement broke out in 1860, I became deeply interested in exploring the depths of old Mother Earth for the treasures (or God's gifts, if you choose) which were just then found to be stored away, awaiting man's energy and inventive genius to bring them to light. I have told you about well-digging on our own premises, and of the two soft-water wells that rejoiced our hearts as a reward for our researches in the way of well-digging or drilling, rather. And, by the way, I am now feeling happy every day because one of those wells I told you about is now supplying our whole town of Medina with pure soft water. While putting in new waterworks there was no readily available plan of keeping the town supplied unless the pumping-engine was located at our first soft-water well; and it is at this very moment while I write doing duty by supplying the town.

Perhaps I have already told you that we have digged and drilled seven different wells on our premises, and all of these have been put down since we came here, nineteen years ago. After securing these two wells of soft water, especially when we were using only *one* of them for our own premises, it would seem that we should be content. Not so, however. The well at the windmill upon the hill was put down 99 feet, and gave an abundance of very hard water, unfit for steam-boilers, and unfit for *drinking* after you have once tried the water from the soft-water wells—at least, that would be my verdict.

The windmill has been standing idle ever since the soft water was found. It must have continued to stand idle unless we did one of two things—move it down to the creek bottom, where there is comparatively little wind unless we have a very expensive high tower, or drill the well deeper at the windmill, so as to strike the same vein of soft water. We finally decided, during the month of March, to try drilling the well deeper. The well-driller preferred to make an entirely new well at his usual price—something like a dollar a foot for a six or eight inch bore. He said he did not like to fuss with wells already put down; but he agreed, however, to work for me, giving the use of his tools, and one man besides himself, for a dollar an hour; but I had to take all chances of pulling up the old tubing, and getting the smaller hole reamed out, etc. I chose the latter plan. In the first place, it was somewhat doubtful whether the old tubing could be pulled out, for it was driven very securely into the rock (sixty feet deep), and had been in place over seven years.

We procured a stick of timber for a lever, 30 feet long; made a very substantial foundation for a fulcrum; and although we succeeded in breaking our heavy chains, the tubing would not budge. After we had wasted considerable money in this way, we substituted two powerful screws in place of the lever. Once more it seemed as if no power on earth could pull up that iron pipe. We might pull it in two, but it it seemed so firmly imbedded or driven into the rock that it would never move. I began to feel nervous over so much waste of time and money, and, as a matter of course, began to pray that God would help us in our efforts to get pure water, as I had prayed more or less over all the other wells on our premises.

"Boys, are we not getting it started just a little?"

The man who was bossing the job replied:

"I do not think, Mr. Root, it has started a particle."

I had prayed over the matter in the morning before starting the work, and I mentally prayed again that God might help us where we seemed to be helpless. If I remember correctly, it was not many minutes after this silent prayer, that somebody called out:

"We are all right! she's starting!"

We could hardly believe the good news until careful measurement showed that it had moved something like an eighth of an inch. The screws were turned again until every thing began to snap, and the boss told us to hold on a little and give it *time* to come. Pretty soon we had made a whole quarter-inch; then a whole inch; finally several inches, and the little steam-engine with its powerful derrick soon grabbed hold of the rusted tubing and laid it safely on the bank. We were all right. But the rock was now found to be 60 feet deep instead of 40, as I had estimated it. No record had been kept of our former drilling; therefore we were at a standstill until some more eight-inch casing could be ordered. The men were on hand, the machinery in position, and every thing ready to go on. We telegraphed for tubing, but it did not come, and could not be found. The owner of the machinery consented to wait a reasonable time at his own expense; but when day after day passed, and no trace, even when we wired tracers again and again for it, I presume he too began to tire of waiting.

Dear friends, on some accounts I dislike to tell in public print how I have worked and prayed in building up our present business. I do not feel backward about telling my wife or my good old mother about these answers to prayer; but I have often thought I ought to be very careful about telling these things in such a public place as a printed journal like this. I would say to you, however, that this little incident about drilling this well is no new experience of mine. For nearly twenty years past, or ever since my conversion, it has been my daily custom to breathe that little prayer, "Lord, help!" whenever I get into any *sort* of trouble. Of course, I keep in mind that God can not consistently answer my prayer unless my undertaking is a praiseworthy one. If I were going to build a finer house than my neighbor's, or if I wanted a gold watch and massive gold chain to make people stare, I should not think of asking God to help me in getting either one. No doubt many of my desires are selfish ones, for I am human, and sometimes I am led to feel that I am *exceedingly* human. We are told in God's holy word, "If I regard iniquity in my heart, the Lord will not hear me." Therefore he who expects the Lord to hear and answer his prayer must be very careful that no iniquity or selfishness is at the bottom of his undertakings.

The pipe did not come. My friend over at the depot, the agent, said there was no possible way for the tubing to get here before the next afternoon; and the owner of the well-machinery did not want to wait much if any longer, unless I paid him for his time. Besides, I felt impatient at the delay, and was exceedingly anxious to have the work go on. I was up quite early next morning. The weather was just beautiful for this outdoor work, and we had been having previously some very bad weather. I was up in that particular room in the office where I often pray over my plans, and I was wondering if that tubing could not come in some unexpected way so we could have it right off that morning, notwithstanding what the agent said. I remembered that passage in Scripture which says, "The Lord's hand is not shortened,"* and the other one that speaks about even the winds and the waves obeying him. I prayed that, if it were consistent with God's will, he might, in some way beyond my comprehension, bring about the missing pipe, even before the afternoon train. I went downstairs with a lighter heart. Just then one of the men who had come early to commence his day's work said to me with a smile, "Mr. Root, that iron pipe you wanted so badly lies out there on the end of the sidewalk."

You may be sure I was somewhat startled. Yes, I have been startled in this way many times before. The explanation of it was quite a simple matter after all. The railroad company, by some blunder, had carried the pipe past its destination. They brought it back and unloaded it some time in the night. The foreman of the lumber-yard, knowing how badly I wanted it, had pulled it up on his horse-car and placed it where I might have almost stumbled over it. In fact, it was lying right there in plain sight *at the very time* I was praying about it. Some of you may suggest that it was no answer to prayer at all, because the prayer had nothing to do with it. It was *already* there. In reply, let me refer you to a passage in Isaiah, 65th chapter, which says, "Before they call I will answer; and while they are yet speaking, I will hear."

Please be patient with me once more, dear reader. The large eight-inch well-casing I had purchased was second-hand. I chose this kind because it was a good deal cheaper; and as it was to be pulled out afterward it would likely answer every purpose. When it was nearly down to the rock (in order to cut off the hard surface water) the well-man stopped and listened. Water was pouring down in the well. In fact, there was a little waterfall. I laughed, but he looked sober. Said he:

"There is a break in that casing. I was afraid of it, as it was so old and thin."

They put on the tongs in order to see if it could be screwed up; but he soon announced that the thread was spoiled away down in the well, and then he looked more troubled still. Said I:

"Mr. H., can't we pull it up and fix it?"

"We can pull up the top part of it, but there is no way in the world to pull up the lower part, that I know of."

All at once I thought of my answers to prayer in pulling out the old tubing, and in having this very same new casing delivered that morning right at my feet when I so little expected it. To my poor human vision it did not seem probable that God would hear me in that way if it were to result in hopeless disaster like the one right before us. I said again, mentally, "Lord, help!" Let me explain that I was at the time worried with other cares down at the factory, besides this well business, and I could ill spare the time to look into the matter and direct what was to be done next, in order that the expensive men and machinery might not stand still waiting for direction.

"Mr. H., I can hardly believe the pipe has pulled in two. Put on your tools and see if it is not possible to screw it up so it will hold at least long enough to draw it out."

"I will do just as you say, but I am sure it is not a bit of use. We have turned it and turned it; and from its actions I am satisfied it just slips a thread every time we go around. The top will lift right off, but the bottom is *gone*."

I was thinking of the duties and responsibilities that called me to other places, but waited until they began turning the great pipe to see if it might not catch on again. Pretty soon the face of the manager began to soften into a smile. Finally he said:

"Well, I declare! I believe that has caught and screwed down solid; but I never before, in all my experience, saw any thing get into shape away down in the ground like that."

They tapped it gently with the big pile-driver hammer, and it seemed to go down all right. Another piece was screwed on, and before night it was firm and solid in the great bed-rock, and we were ready to go on with our drilling. Mrs. Root and some others asked how we could be sure of getting soft water away up there on the hill. I replied that there was hardly a question about it, for we had got soft water in so many places; and when word came to me along in the afternoon that they had got the soft water, I remember distinctly of feeling a little ashamed of myself *because* I did not thank God more earnestly in my heart for having brought us safely through our troubles, and enabled us to secure the coveted soft water once more. I directed, however, that they should drill five or ten feet deeper in order that the sediment might settle below the point where we expected to place the pump. Well, after we had drilled five or six feet *the water was hard*. I did not examine the water myself, or at least not very thoroughly, when they told me they had soft water. It was now *unquestionably* hard. We put down the pump and worked it for several hours. There were great quantities of water, but it was unfit to put into the great tank beside the windmill. It would spoil all of our good water. I was a good deal disappointed. I feel ashamed to acknowledge it, but I am afraid I began to be just a little doubtful in regard to those strange answers to my prayers at the different times I have spoken of. I am afraid I was forgetting one of my good old father's texts —"Though he slay me, yet will I trust in him."

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* Behold, the Lord's hand is not shortened, that it can not save; neither his ear heavy, that it can not hear.—Isa. 59:1.

Please, friends, do not pass judgment on my Home talk in this issue until you hear what further I have to say on the same matter; and do not, let me beg of you, lose your faith in the great God above, even if he does *not* give you just what you ask for, in just the way you *expected* it to come.

HIGH PRESSURE GARDENING

HOW TO TELL WHEN THERE IS GOING TO BE A FROST.

Candidly, I don't know; but I do know from experience something about it. On the night of May 20 we had a big rain. Before the rain the thermometer stood between 70 and 80. The next morning it was down to 50; and I knew, before the Weather Bureau said so, that the conditions were going to be favorable for a frost that night — that is, if it cleared off. So you may be sure I watched both the thermometer and the barometer all day long. About a week ago the indications were so strong for a frost that we spent a couple of dollars in getting our sashes on, and covering tomatoes, strawberries (that had been grown under glass), etc., for three nights. We came very near frost, but there was not any to do any damage. All our fuss in carrying things, and the attendant litter, was time wasted. A year or two ago, however, one night when I decided to take the chances, we had lots of nice tomatoes badly damaged after I had carried them through March, April, and a part of May. Well, last evening I felt very much averse to getting out our sashes again. They were nicely put away for the season, with the big boxes that sit over them inclosing and protecting each pile. It is heavy business lifting off those large boxes, and we almost always have more or less broken glass in handling our 150 sashes. I was watching the barometer and thermometer, watching the wind, and watching the clouds. The boys were quite willing to go to work and make every thing safe, but I told them I would take the chances.

By the way, just across the street from where I write there are some of the Earliest in the World tomatoes trained upon poles. Some of them are three feet high already; and I tell you it is a job to blanket them. We did it, however, last Saturday night, and the structure looked so queer that passersby began to banter me about fixing for a variety show. On Sunday morning, before I got my cotton sheeting and other "drapery" off from the plants a horse got frightened at the unusual spectacle. Well, in thinking this all over I decided to take my chances, even though the barometer was hitching up a little for a clear night, and the thermometer was down to just about 50 at sundown. (One of our rules has been that there is never much danger of frost while the mercury stands above 50° at sundown.) Besides, it was a little cloudy in the west, and I told the boys they might all go home. Just as the sun was disappearing, however, it met a streak of clear sky under the clouds; and by nine o'clock we had a clear starry night. The thermometer, however, stood a little above 40. I got up at midnight, and the mercury was down to 38°. I told Mrs. Root I was going to have a "picnic" about the first glimpse of dawn; for I had noticed several times that the coldest period was between dawn and sunrise. In fact, I have seen plants frozen *after* sunrise that were not hurt a bit until that time. At half-past three it was light enough to see, and the thermometer stood at 36. The frost was white and thick on the roofs of buildings, sidewalks, and every piece of exposed timber. At first I thought the tomato-leaves were frosted; but a little more daylight showed they were simply loaded with a very heavy dew.

When the thermometer got down to 35½ I began to think I should have to call up Huber to help me cover up the stuff, even to protect it for a single hour. I walked all over the garden, watched Nature's performances, and then held my breath (so as not to breathe on the bulb) while I watched the thermometer again. It would not budge a bit from 35½. About four o'clock, however, it was perceptibly rising, and I began to rejoice. At half-past four it went down again all it had risen, and a little more. I climbed up to the highest point accessible, and watched for the sun. I would have hurried old Sol up a little, but I did not know how. When his rays began to touch the top of the windmill tower the thermometer deigned to hitch up a little. I kept fingering the tomato-leaves, and saw they were all right. When the sun was clear up above the horizon, and his rays burst forth in all their glory over the tomato-plants and every thing else, *then* I rejoiced. Not a sash had been moved, not a sheet or blanket carried out, and my whole garden was unharmed. Out in the apiary a few sweet-potato plants had their foliage blackened a little—that was all.

I have gone into all these details, dear readers, because it is exceedingly important that the gardener should learn to judge with considerable accuracy, that he may not waste money in handling sashes needlessly, and, on the other hand, that he may not take risks recklessly, and do a worse thing. Now, if you know of any better way of steering clear of both these extremes I should be very glad indeed to get hints on the subject.

THE "EARLIEST" STRAWBERRY.

These berries are now ripe, but there are not very many of them. Thompson's Sons, of Rio Vista, Va., say that it will be more productive in two or three year-old beds. This I can readily understand, if the runners are pulled off. In fact, by the way it commences to send out runners as soon as blossom-buds are visible I feared we should never get any good berries unless I pinched the runners off, which I did on a few, and the berries are very much finer and larger. The introducer says one dozen plants will make a *thousand* on ordinary soil in a single season. The shape is perfect. The color is pretty light, and the berry is soft. But it is so far ahead of every thing else in ripening that I think it will be worth while to have at least a small plot of it on which to open up the season. It very much resembles Michel's Early, but I think it is considerably earlier—probably just about as productive. My impression is that all berries of this class should be planted in hills, and the runners kept off.

WHAT STRAWBERRY AMONG OUR WELL-KNOWN VARIETIES WILL GIVE THE GREATEST NUMBER OF BUSHELS PER ACRE?

"Mr. Green, the Ontario Experiment Farm have made a test of 121 varieties of strawberries, including almost everything that is known and talked about, and they have given the number of ounces produced by one dozen plants—that is, one dozen plants were put out and allowed to make a matted row, and the berries were gathered and weighed the next season. Now, can you guess which plant gave the largest number of ounces in the whole 121?"

My remarks were made to Mr. E. C. Green, who was formerly connected with our Ohio Experimental Farm. As I spoke he smiled good-naturedly, tipped his head a little to one side, and said:

"The largest yield? Let me see. Why, I shouldn't wonder if our old friend *Warfield* has found a place pretty near to, if not *quite* at the head of the list."

Then I had a big laugh. As sure as you live, Warfield heads the list of the whole 121, with a yield of *294 ounces*. Edgar Queen comes *third*, with 244. Haverland falls in line as No. 10, with 205 oz. You may be sure I felt a little pleased to find at least three that we have held on to for many years standing so near the head. Bubach comes along as No. 18, with a yield of 185 oz. Michel's Early is 48, 140 oz. I have not retained this because of its large yield, by any means, but because it was earlier than any thing else. Jessie comes in 66 in the line, with 105 oz. On our grounds I think it would do rather better than this, although it does *not* do tiptop except during an occasional season. I was a little disappointed to see the Marshall put just one ahead of Jessie, and I was still more surprised to find Parker Earle No. 91, at only 56 oz. The truth is, the Parker Earle wanted richer ground and larger quantities of manure.

Now, what do you suppose was the *poorest* in the lot? Why, it is the Alpine Everbearing; and it would hardly be worth while to give the Alpine a place at all were it not that it furnishes a few berries all summer long, and these few have that wonderfully delicious musky flavor.

Let me now go back to No. 1. It has been one of my favorites for a good many years, and I feel like petting it a little, as below:

"Dear little Warfield, it rejoices my heart to see my faithful little friend given such a *high* post of honor. Your berries are not as large as the Bubach, Sharpless, and some of the newer varieties, it is true; but not one of them all has that beautiful rich garnet that makes it shine like a *gem*, as you do down among the green foliage. And there is no *humbug* about your shining, either, dear little friend; for whenever one utters an exclamation of surprise at your beauty—beauty in shape and beauty in color—he gives place to a still more joyful expression of pleasure when he tastes that delicious tartness; and I suspect, little friend, that if you had plenty of room, rich soil, and had the runners taken off, as we do with some of the newer kinds, you would show us some wonders in the way of *size* that you can not when everybody lets you set the plants so thickly that it makes me think of a family of children so large that the good mother can hardly find food for them all."

CRIMSON CLOVER.

Our crimson clover is now in full bloom, and it is a sight indeed. I learn from Prof. Thorne, of the Ohio Experiment Station, that they also have succeeded during this last winter in wintering it over. A neighbor was in here a few hours ago, who says he has ten acres. It was sown among corn at the last cultivating. He thinks the stand was almost as good as mine. He plowed it under, and is now going to grow corn again on the same ground. From reports received it seems to be succeeding well through Northern Ohio, especially along near the lake, and several reports have come of successful wintering in York State.

POTATO-BUGS ON TOMATO-VINES.

If you plant tomatoes on ground that potatoes have occupied the year before, you will be sure to be troubled with bugs; and if you do not look out they will eat up your tomato-vines entirely. Dust them with Paris green, just as you do potato-vines. Any of the dust-distributing machines we advertise will do it to a dot. A very little of the Paris green suffices, and it lays them out almost instantly.

THE GLEANINGS CONTRIBUTION FOR THE STARVING PEOPLE IN INDIA.

We did not expect to open a subscription-list in GLEANINGS for this purpose, but I do not see but we shall be compelled to do so. See below:

A. I. Root:—I read to-day in your journal of the famine-stricken people in India. Inclosed find $2.00 which I wish to send to them. I knew of no place to send the money, so I thought you would see that it reached them. LYDIA WAGNER.

Calamus, Iowa, May 21.

Mr. Root:—A woman in Kansas sent me this five-dollar bill, to have me put a white wreath on a friend's grave next Sunday morning. I will put the wreath on the grave, as she desires, but it seems too bad for so little good. I will send it to you, to send the quickest way to help some of those famishing children in that land of darkness and drouth. May the Lord's blessing go with it.

Pleasant Hill, Mo., May 25. GEO. M. KELLOGG.

We will add $25.00 to the above, from the A. I. Root Co., and forward the whole to Sec'y Judson Smith, D. D., Congregational House, Boston. To save time I would advise contributors to remit direct as above. You can, at the same time, inform us what amount you sent, and we will publish your letters, if brief, in this department of GLEANINGS. God will surely bless those who make a sacrifice to relieve starvation and suffering.

THE AIR-SHIP.

I am told there is an air-ship, after all, and they have it at the National Exposition at Nashville. I am very well aware that they have a balloon there that they call an air-ship; but a balloon that goes wherever the wind happens to blow it is quite a different affair, dear friends, from a ship that sails through the air wherever one wants to go, as a steamship goes over the water to its destination.

SPECIAL NOTICES FROM BUSINESS MANAGER

NO. 2 SECTIONS OPEN ALL AROUND.

We are still short on No. 2 sections, except as you can use them open on four sides can supply this style in No. 2, 2 in., 1⅞ in., or 1½ inches wide, very promptly. We are turning out 90 to 100 M sections every 24 hours during the week except Sunday, and they go out as fast as we can make them. We are now making from inch lumber, and have a surplus of narrow widths, 1⅝, 1½, and 7 to foot. The tendency is for the use of narrower sections. In Canada the standard is 1½.

SMITH'S NOVELTY FORCE PUMP.

The spraying season is not yet past, but just at its height. We have an extra supply of Smith Novelty force pumps. This is undoubtedly the best tin pump ever made. We have sold them for upwards of fifteen years, and they give universal satisfaction. For a cheap force pump they have no equal. Being made of tin they will not last as long as a brass pump, but you can afford to buy four or five of these for what you would pay for a good brass pump. For the next 30 days we offer these pumps at the following special prices: 75 cents each; 3 for $2.00; 12 for $7.50; 24 for $14.00; a crate of 3 doz., $20.

MOHERMAN SPRAY-PUMP.

We have also an extra supply of the Moherman spray pump which we took in a trade. It is an excellent brass pump, with air-chamber, rubber tube, and sprinkler and spray nozzles; is very similar to the Myers pump we have been selling for several years, usually retailing for $5.00. For the next 30 days we offer these at $2.00 each, or $5 00 for 3; $18.00 per dozen. Catalog and fuller description of these pumps will be found in our seed catalog, among our other spraying-pumps. We make these special prices for only a limited time, to reduce stock.

BUSINESS AT THIS DATE.

We have not had such a rush of orders since 1890, and we hear from other manufacturers that they are having a rush as well. We have been running our factory day and night for the past six weeks in the effort to keep up, but we have been losing ground the past two weeks. We are about one week behind on orders. Of course many orders go out in less time, some of them the same day received, or next day, but the larger part of the orders take a week before we get to them. As the demand usually is greatest in May and lets up in June, we expect to gain rapidly on orders from now on so that we hope within the next two weeks to catch up. We have on hand ready for immediate shipment several hundred regular No 1 Dov. hives, 1896 style, with Higginsville cover. If any want hives in a hurry and can use these we will agree while they last to get them off promptly. The price is 5 cts. each less than this year's style, and they are packed in crates of five in flat complete. Our Chicago and St. Paul branches can also supply the same kind.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

PACKING WINTER APPLES IN SAWDUST, ETC.

I am reminded that, in my editorial on page 396, last issue, I was a little more severe than the circumstances perhaps warranted. I confess I was a little bit stirred up to see this man getting 50 cts for telling people how to keep apples in sawdust. I received the recipe just before going to press, and barely had time to get in a note of warning. I had seen the advertisement in the *Ohio Farmer* only; but I did find a scrap from an agricultural paper, advising everybody to send for this recipe, saying they had just received a basket of beautiful apples from Mr. Wright, etc. This scrap of paper was not from the *Ohio Farmer*; but I am now told the same *advertisement* had been previously accepted by three other agricultural papers. Perhaps the reason why I saw the advertisement in the *Ohio Farmer* and overlooked it in the three other papers (for they all come to my desk regularly) is that I read the *Ohio Farmer* with more care, advertisements and all, than almost any other agricultural paper. It is published near my home, and I am personally acquainted with some of its editors, and I hope and believe they are personal friends of mine. I have known the *Farmer*, and read it, almost all my life, and I humbly beg pardon of the *Farmer* people and of all of our readers if by my vehemence I seemed to show want of respect to or throw discredit upon that excellent agricultural journal. I do not know of any other agricultural periodical that has more articles from our best practical farmers—good common-sense articles — published without fear or favor, than the *Ohio Farmer;* and if it went into more of the homes of our farmers all over the country there would be a "heap" less money wasted on agricultural swindles.

SELLING RECIPES AND SECRETS FOR DOING SOMETHING.

One of our readers thinks A. I. R. had better go for the poultry-journals. He says they are full of recipes for making things for killing vermin on poultry, to make hens lay, etc. Now, what in the world is to prevent the editor of each and every poultry-journal, accepting such advertisement, from sending the 50 cts., getting the recipe, and publishing it to *all* his readers? The recipe oftentimes takes less space than does the advertisement that proclaims the wonderful virtue of the "great discovery," etc.

500 BUSHELS OF POTATOES GIVEN AWAY DURING THE LAST TWO WEEKS: 1000 MORE TO BE GIVEN AWAY DURING THE MONTH OF JUNE.

At the present date, May 29, we have remaining of Maule's Thoroughbred, 125 bushels of firsts, 238 seconds; Early Ohio, 20 bushels firsts; Early Norther, 4 bushels; Burpee's Extra Early, 4 bushels; Freeman, 130 bushels firsts, Terry's own growing; New Queen, 95 bushels firsts, 90 of seconds; Monroe Seedling, 15 bushels; Rural New-Yorker, 5 bushels; Sir William, 185 bushels; Carman No. 1, 22 bushels; Koshkonong, 5 bushels; New Craig, 83 bushels of firsts, 12 of seconds.

Our friends will notice that we have more of Maule's Thoroughbred than of any other variety. I presume this is owing to the fact that they gave us such an enormous yield last season. We want every reader of GLEANINGS to try these and have a good stock; therefore we make the following offer until they are sold out or planted:

A BARREL OF THOROUGHBRED POTATOES FOR EVERY NEW NAME.

Every reader of GLEANINGS who sends us a new subscriber, and introduces it into some new locality, as we have heretofore explained, may have a barrel of Thoroughbred firsts for every new name sent; or he may have a barrel of any other variety named above; or a barrel made up of mixed varieties, as he chooses; a barrel of potatoes for every new subscriber, with $1 00 accompanying.

A BARREL OF THOROUGHBRED SECONDS FOR EVERY DOLLAR RECEIVED FOR GLEANINGS.

For every renewal, or every dollar sent us for GLEANINGS, past, present, or future, you may have a barrel of Thoroughbred seconds, or a dollar's worth of any other potatoes mentioned in the list. With the cool weather we have been having through all the month of May, our potatoes are in very fair order for planting, and we think they may all, or nearly all, be planted safely at any time during the month of June, but the sooner you get in your orders the better, as a matter of course.

All votatoes go off *first train.*

I write to say that potatoes were received in good time, and in the most perfect order. The Rural New Yorker potatoes were the most handsome of the kind that I ever saw. In fact, all were fine.

Pleasant Valley, Va. C. W. RICE.

[Friend R., I wonder if it is not somewhat owing to the name of the place of your abode that you are so well satisfied.—A. I. R.]

Root's Goods at his prices in Northern Michigan.

Local dealers supplied at dealer's rates. Goods shipped from Mt. Pleasant, Coleman, or Evart.

B. WALKER, Evart, Mich.

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Our Prices are Worth Looking at!

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New Champion Chaff Hive Especially.

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Dr. Gallup says they are the best he has in his yard.

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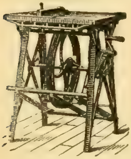

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Honey Leaflet, by Dr. C. C. Miller. Why honey is more wholesome than cane sugar; honey as an article of diet; honey cooking recipes. This leaflet is written for the benefit of consumers, and is put out at an extremely low price so that honey producers may distribute them free to their customers. Prices: 10, 5c; 100, 20c; 500, 75c; all postpaid; 1000, 75c; carriage extra.

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QUEENS

Untested, 50c; doz., $6.00
Warranted, 60c; doz., $7.00
Tested, 75c; doz., $8.00

Imported Italian mothers only are used, and for industry, gentleness, and beauty their bees are unsurpassed. We have in our yard bushels of drones from imported mothers and their daughters, and a mismated queen is rare. No defective queens sent out. Remember that we are in the far South, and can send queens by return mail. Safe delivery. Money-order office, Decatur.

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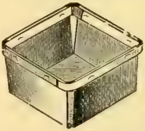

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Order your supplies now before the busy season catches you. Price list free. Address

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ALL QUEENS

that are shipped from our apiary are to be depended on to produce strong colonies of fine honey-gatherers. We have but the purest Italians, and we take pride in furnishing the best of queens. Tested, $1.00 each; $11.00 per dozen. Untested, 75 cts. each, $8.00 per dozen. Safe arrival and satisfaction guaranteed on every order.

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"A thousand dollars would not buy a better bicycle than the Columbia---nor 'just as good' ---because none so good is made."

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Hartfords are next best, $60, $50, $45

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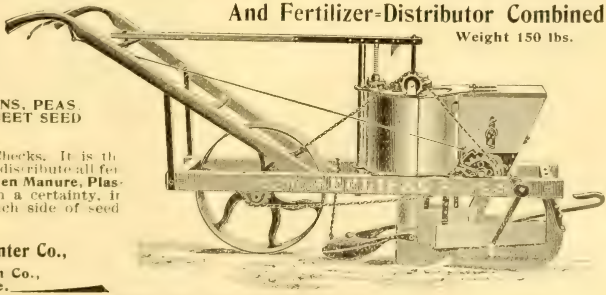

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If so, You Want the Best.

This is the only quality we offer. Our prices are right, and our '97 catalog describing them, and the management of bees, is yours for the asking.

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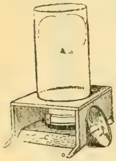
Bee-keeping may be made uniformly successful by judicious feeding. It is just as important with bees as with other stock.



Success in feeding depends very much on the feeder used. When you have tried the

Boardman Atmospheric Entrance-feeder

you will be convinced of this.

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Queens ready to mail, either golden or dark queens from select stock, at 65 cents each; ½ dozen, $3.50; dozen, $6.50; two or more dozen at $6.00 per dozen. Tested queens, 75 cents each.

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GUARANTEED

Queens from best working stock.
Reared by best methods.
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Poor queens replaced free.
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Daughters of best imported queen mother, warranted purely mated to drones of imported stock from a different source; hence, a direct cross. 12 years as a honey-producer on a large scale has taught me what good queens mean to the producer as well as how to rear them. Price of queens, 50c each. Safe delivery and satisfaction, or money refunded. **L. H. ROBEY, Worthington, W. Va.**

BIG WONDER! The Smoke Engine goes without puffing; burns in the center; heats only the top; burns chips without drizzle; makes all the smoke wanted, without work; the best bee-smoker ever made; doesn't tip over.

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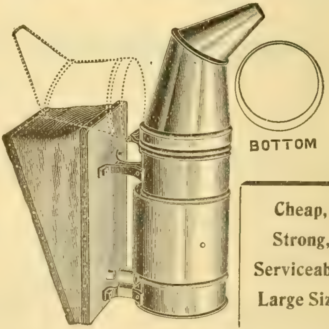

Cheap,
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Large Size.

JUST THE THING for those who want a first-class smoker at a medium price. Size of cup, 3¼ inches; curved nozzle, hinged so as to swing back; legs of malleable iron, secured by bolts. The blast is the well-known Corneil principle. Weight of smoker, only 20 ounces.

Price **$1.00**, postpaid, or **75c** if sent by express or freight with other goods.

THE A. I. ROOT COMPANY,
MEDINA, OHIO.

Send Your Beeswax

to M. H. HUNT, Bell Branch, Mich.,

and have it made into foundation. It will cost you only 12½c per lb. for thin surplus, and 15c for extra-thin light brood; 10c, medium brood, or heavy, 8c. A carload of Root's goods at bottom prices. Let me quote you prices, wholesale or retail. Large free price list full of information.

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Orders filled by return mail or freight for A. I. Root Co's supplies, our choice strain Italian queens; one, two, and three frame nuclei. If you want good goods at low prices and in a hurry, send us your orders. 36-page catalog free.

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Pure Italian Queens.

Fifty cents each. Warranted first-class. No black bees here, and no disease. Safe arrival guaranteed.

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FOR SALE.—75 Colonies of Italian Bees, in eight-frame Langstroth hives. Price $4 to $4.50 per colony. Discount on five or more colonies.

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Italian Queens, either golden beauties or 3-banded imported stock. Tested, $1.00 each; untested, 70c each; half dozen, $4.00. One queen to new customer, 65c. P. O. M. O. office, Lavaca, Ark.

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One Remington Racer (made by the Remington Arms Co.), weight 20 lbs., 1¼-in. tubing; nearly as good as new, and listing $110.00. We offer for $45.00.

One second-hand Victor, '95 pattern; wood rims; wood handle-bars; Morgan & Wright tires. Sold originally for $100 00. We offer for $25.00. It is in good riding condition, having been overhauled in our bicycle-repair shop.

One ladies' Century, used but little, wood rims, 26 inch wheels, Morgan & Wright tires; weight 26 lbs. We offer for only $20.00. This is a bargain.

Wax at market price will be accepted in place of cash.

THE A. I. ROOT CO., Medina, O.

Wants and Exchange Department.

WANTED.—To exchange for any thing useful, St. Bernard puppies at greatly reduced prices; also pure-bred Poland-China hogs and Pekin ducks.
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WANTED.—To exchange single-case World typewriter (good as new); also hybrid bees in full colony, for extracted honey or offers.
A. W. GARDNER, Centreville, Mich.

WANTED.—To exchange three 100-gallon heavy tin tanks—improved honey-faucet, four bands, worth $5.00—for extracted honey.
WM. A. SELSER, 10 Vine St., Phila., Pa.

WANTED.—To exchange Pekin ducks or eggs for Italian queens, African geese or offers.
JOHN BURR, Braceville, Ill.

KIND WORDS FROM OUR CUSTOMERS

We never had such a call for the Root goods as we have this season. Everybody praises them, and we are nearly a carload of goods ahead of our sales from the Philadelphia branch over last season. The honey crop is very promising. WM. A. SELSER.
Philadelphia, May 19.

I think your Home talks and Notes of Travel are excellent; and exposure of advertisements that only rob people of their hard earnings are all right.
La Fayette, Ind., May 24. STEPHEN W. BRADY.

I received the books all right, for which accept my sincere thanks. I would say that I would not take double what they cost, and be without them. I was a little surprised, though, when I received your letter yesterday returning the small amount of five cents. Now, please, brother, don't do so any more. If I should order any thing and send a few cents more than the regular price, just keep it and don't go to spending half the amount to return it.
Paducah, Ky. D. R. SMALLEY.

Bees in Texas are just booming. The whole country seems flooded with honey. They are swarming more than I ever saw before. We are using the Langstroth hive, but we have decided to make a change. We shall try the Dovetailed. I think it the most complete hive I ever saw. Bee culture is coming to the front just now in Texas. The people are more interested in the line of bee-keeping than ever before. G. H. REED.
Boyd, Tex., May 14.

I received the A B C book. Thanks for the same. I have read "Langstroth on the Hive and Honey-bee," and also Langstroth as revised by the Dadants; also King's "Bee-keeper's Text-book," and many lesser works. I think the bee-keeping world owes A. I. Root and son quite a debt for their able work. I want to thank Mr. Weed for his great improvement in comb foundation. The foundation I got this spring works very nicely. I shall be pleased to send to you for any thing I may want in your line.
Cuba, Kan., May 15. WM. H. EAGERTY.

MILLIONS OF DOLLARS IN "APPROPRIATIONS," AND CORN 10 CTS. A BUSHEL.

Dear old Friend:—I write to say how pleased I am that in GLEANINGS, p. 296, you have at last admitted there is something wrong in this United States. It has taken you many years to see it; but I don't wonder; such men as I am have kept you busy. But I can just say, if you had sold honey, strawberries, and eggs *for a living*, you would have had your eyes opened long ago to that fact. Reduce a community so low that they must live on *potatoes* and *salt*, and they will not buy much honey, or *clothing* either for that matter. ROBT. B. LANCHESTER.
Hagerman, Idaho.

A KIND WORD OF WARNING FROM SOME SAD-HEARTED FRIENDS.

Mr. Root:—Last Wednesday, the 19th, right after breakfast, my wife took our little baby boy off his chair to let him play in the yard. He then followed one of the boys out of the lot gate and wandered up the road to a railroad-crossing. A Wabash freight train came along at full speed and ran over the poor child and killed him almost instantly. This happened a little after 7 A.M., while I was at work in the apiary. I tell you it was a shock for us. It happened all in about ten minutes. He would have been 20 months old June 4. He was our beloved baby boy. His name was Henry Frederick Werner.
Edwardsville, Ill., May 24. LOUIS WERNER.

Dear brother and sister, we all try to sympathize with you; but I suppose none but those who have been through a similar trial can realize what you must suffer. Your warning may, however, do us all good. We live almost as near the railroad as you do, and we have had the same trials with our two grandchildren. Finally we made a little fence of wire netting to keep them within bounds until they were old enough so the danger could be explained to them. The netting costs but little, and with some sharp oak stakes it can be put up in a few minutes; and even now our little granddaughter, just about the age of your lost one, has to be restrained by a gate on the porch, which she can neither open nor climb over. Those who live near railways should be exceedingly careful. As soon as the little one is old enough to understand, it should be warned again and again, until it is made to comprehend the terrible results that may occur from wandering away. May the great God above give you consolation and help in this your great trouble.

BUY DIRECT

and pay but one profit. Our assortment is one of the best and most complete in

FRUIT and ORNAMENTAL TREES, SHRUBS, PLANTS, ROSES, VINES, BULBS, SEEDS

Rarest new, choicest old. Send for our **catalogue to-day;** it tells it all; **an elegant book, 168 pages, magazine size,** profusely illustrated, **free.**

Seeds, Plants, Bulbs, Small Trees, etc. by mail postpaid, safe arrival and satisfaction guaranteed. Larger by express or freight. 43d Year. 32 Greenhouses. 1000 Acres.

STORRS & HARRISON CO.,
Box331 , Painesville, Ohio.

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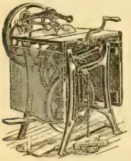
KILLS ALL BUGS

You can dust one acre of potatoes in 40 minutes by doing two rows at once. No plaster or water used. With this machine you can dust tobacco, cotton, fruit trees, currant bushes, etc. BOOK FREE. Write to

HOTCHKISS BROS.,
Wallingford, - Conn.

When more convenient orders for the above machine may be sent to the A. I. Root Co., Medina, O.



ONE MAN WITH THE UNION COMBINATION SAW Can do the work of four men using hand tools in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging up, Jointing Stuff, Etc. Full Line of Foot and Hand Power Machinery. *Sold on Trial. Catalog Free.* 1-24ei

SENECA FALLS MFG. CO.,
1 Water St., Seneca Falls, N Y

BEES FOR SALE. In 8-frame Dovetailed hives, queens from imported mothers. Price **$3.00** to **$4.00** per colony.

EDW. SMITH, Carpenter, Ill.

It is here.

The year 1897 is here, and we are happy to inform our friends and customers that we are now better prepared than ever before to fill your orders for queens and bees. We have the largest stock ever operated by us, and we mean to be ready with plenty of bees and queens to fill all orders without delay that are sent to us.

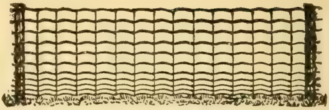
Bees by the pound, $1.00; ten or more pounds, 90c each. Untested queens for 1897, $1 00 each in February, March, April, and May; $5.00 for six, or $9.00 per dozen. For larger amounts write for prices. Have your orders booked for your early queens. Safe arrival guaranteed.

Root's goods, Dadant's foundation, and Bingham smokers. A steam bee-hive factory, and all kinds of bee supplies.

The ***Southland Queen,*** the only bee-paper in the South, monthly, $1.00 per year

Send for catalog, which is almost a complete book on Southern bee-keeping, giving queen-rearing in full, all free for the asking. If you want full information about every thing we have, and the bee-book, don't fail to ask for our 1897 catalog.

The Jennie Atchley Co.,
Beeville, Bee Co., Texas.



Luck or Merit ?

Our competitors say it's **Luck** that enables us to get all the best Railroad trade, the best farm trade, and all the Parks and Game preserves. Our customers **buy** the fence on its merits. we **sell** on its merits. and no one objects to the good luck that goes with it.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

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A Dollar Saved

is better than one earned. Read my 37th annual catalog, and don't send out West for goods you can buy cheaper here at home.

I have added 2400 feet of floor-space to my store-house and shall keep in stock Root's polished one-piece sections. Dovetailed hives, new Weed foundation, etc., in addition to my old line.

Best breeds of bees and queens at bottom prices. Don't buy until you see what you can do with me.

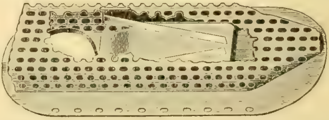
W. W. CARY, Colrain, Mass.

Just Arrived !

My second carload of goods from **The A. I. Root Co.** has arrived, and I am in shape to fill all orders promptly at their catalog prices. Send for my 36-page catalog; also send a list of what goods you will need, and I will make you special prices on early orders.

GEO. E. HILTON,
Fremont, Mich.

Porter Honey-House Bee-Escape.



Have you seen it ? Just the thing to put on the doors or windows of your bee-rooms. Indispensable, you'll say, after you have tried it.

Price by mail, **25** cents.

CO
RAPID
EXT

Cowan and Novice Extractors.

These are the best. We are prepared to furnish on short notice, from any of our several branches, 2, 4, and 6 frame Cowans, and 2-frame Novices.

If you want the genuine, see that they bear our name.

A 36-page catalog sent free on application.

THE A. I. ROOT CO., Medina, Ohio.

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Honey Column.

CITY MARKETS.

NEW YORK.—*Honey.*—The demand for honey for the last few weeks has fallen off quite a little. Supply here is rather light; some call for buckwheat comb honey; quite a little call for fancy white-clover comb honey. Beeswax is held stronger, market has advanced within the last week, supply here is light. Considerable demand. Fancy white honey, 10c; No. 1 white, 9c; fancy amber, 8c; No. 1 amber, 7c; fancy dark, 7c; No. 1 dark, 6c. White extracted, 5¾c; amber, 4¼c; dark, 3¼@3¾. Beeswax, 26½@27½c

FRANCIS H. LEGGETT & CO.,
West Broadway, Franklin and Varick Sts.
May 29.

CHICAGO.—*Honey.*—Fancy white, 13; No. 1, white, 11; fancy amber, 9@10; No. 1 amber, 7; fancy dark, 8@9; No. 1 dark, 7; white extracted, 5@7; amber, 5@6; dark, 4@4½; beeswax, 27. Choice comb honey would sell freely at top quotation, as market is bare.

R. A. BURNETT & CO.,
May 19. 163 So. Water St., Chicago, Ill.

MILWAUKEE.—*Honey.*—Fancy white, 12@14; No. 1 white, 11@12; fancy amber, 10@11; No. 1 amber, 9@10; white extracted, 6@7; amber, 5@5½; dark, 4@5; beeswax, 26@27. The trade in honey since our last has been dragging, and demand fallen off somewhat. Our supply of choice quality is not large, and think will all be wanted before new crop. The common grades of comb will be the last to dispose of. Hence the *moral*, improve the quality to a perfect degree, and better sales will follow and better values will accrue. A. V. BISHOP & CO.,
May 19. Milwaukee, Wis.

ST. LOUIS.—*Honey.*—Fancy white, 12@13; No. 1 white, 11@12; fancy amber, 10@10½; white extracted, in bbls., 4½; in cans, 5; amber, in bbls., 4; in cans, 4½; dark, 3½@4, in bbls.; beeswax, 24½@25. The demand for honey is and will be light from now to the first of October. Bakers and candy-factories not using any this season of the year, and they consume most of our extra stock.

WESTCOTT COMMISSION CO.,
May 20. 213 Market St., St. Louis, Mo.

DENVER.—*Honey.*—Fancy white, 11; No. 1 white, 10; fancy amber, 9; white extracted, 6; amber, 5; beeswax, 25. We are having an unusual demand for our brand of extracted honey. It has been well advertised of late, and our customers know a good article when they use it. There are several brands of honey shipped to our market that are not pure, but we believe all Colorado honey on our market to be pure. The great trouble we have to contend with in this dry climate is granulation. We are looking for a good crop of honey this season.

R. K. & J. C. FRISBEE,
May 22. Lock Box 1014, Denver, Col.

NEW YORK.—*Honey.*—Our market is in good shape—the old crop well cleaned up, both comb and extracted. New crop extracted is arriving from the South, and in fairly good demand at 50@52 per gallon for average common, and 55@60 per gallon for better grades. Beeswax rather quiet at 26@27.

HILDRETH BROS. & SEGELKEN,
May 20. 120-122 W. Broadway, New York.

CLEVELAND.—*Honey.*—Fancy white, 12@12½; No. 1 white, 10@11; fancy amber, 8; fancy dark, 7.

A. B. WILLIAMS & CO.,
May 25. 80-82 Broadway, Cleveland, O.

KANSAS CITY.—*Honey.*—Fancy white, 12@13; No. 1 white, 11@12; fancy amber, 10@11; No. 1 amber, 8@10; fancy dark, 8@9; No. 1 dark, 8; white extracted, 5@5½; amber, 4½@5; dark, 3½@4; beeswax, 25.

C. C. CLEMONS & CO.,
May 20. 423 Walnut, Kansas City, Mo.

BOSTON.—*Honey.*—Fancy white, 13; No. 1, 11@12; white extracted, 7@8; amber, 5@6; beeswax, 25@26. Our market is without change as to price, but we note a lighter demand natural to the warm weather. E. E. BLAKE & CO.,
May 19. 57 Chatham St., Boston, Mass.

DETROIT.—*Honey.*—Fancy white, 10@12; No. 1 white, 10@11; fancy amber, 8@9; No. 1 amber, 7@8; white extracted, 5@6; amber, 4@5; beeswax, 25@26. Dark comb not much called for, and what there is in sight is not attractive, and buyers of it can make the prices. M. H. HUNT,
May 20. Bell Branch, Mich.

SAN FRANCISCO.—*Honey.*—Fancy white, 10; No. 1 white, 9; fancy amber, 7; No. 1 amber, 6; fancy dark, 5; No. 1 dark, 4; white extracted, 5; amber, 4; dark, 2; beeswax, 24. New honey of very fine quality is coming in the market. The crop will be a good one, but less than expected three weeks ago. Looked-for late rains did not come.

HENRY SCHACHT,
May 14. San Francisco, Cal.

CINCINNATI.—*Honey.*—No. 1 white, 10@13; No. 1 dark, 8@10; white extracted, 5@6; amber, 4@5; dark, 3½@4; beeswax, 22@25. CHAS. F. MUTH & SON,
May 18. Cincinnati, O.

COLUMBUS.—*Honey.*—Fancy white, 12@12½; No. 1, white, 11; fancy amber, 8. Strawberries are now arriving so freely that honey is slow sale. Advise no shipments without direct communication with us. THE COLUMBUS COM. & STORAGE CO.
May 22. 409-413 N. High St., Columbus, O.

MINNEAPOLIS.—*Honey.*—Fancy white, 12@14; No. 1 white, 11@13; fancy amber, 10@12; No. 1 amber, 9@10; fancy dark, 8@9; No. 1 dark, 7@8; white extracted, 6@7; amber, 5@6; dark, 4½@5½; beeswax, 25@27. Comb honey nominal. Movement very light and will probably continue so during warm weather. Extracted steady demand, moving on new water white at full quotations. S. H. HALL & CO.,
May 20. Minneapolis, Minn.

PHILADELPHIA.—*Honey.*—White extracted, 5@5½; amber, 4@4½; dark, 3½@4; beeswax, 25. No comb honey in this market but odds and ends. Nobody wants comb honey now. Considerable call for extracted. Beeswax in constant demand.

WM. A. SELSER,
May 21. 10 Vine St., Philadelphia, Pa.

FOR SALE.—Fancy extracted in 60-lb. cans, and fancy comb (Danzy sections) mangrove honey in 30-lb. cases. Cash offers wanted, f. o. b. here.
H. PRICE WILLIAMS, Miami, Florida.

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After June 10th we sell eggs from all our yards at HALF PRICE ($1 per 15). Eggs will be from our best pens, and handled with the same care early orders receive. Our breeds:

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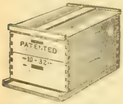
GEO. J. NISSLY, Saline, Mich.

What Has Been Told Lately

In the *Bee-keepers' Review* ? did you ask ? Well, in the Jan. issue Mr. Aspinwall explained a simple plan whereby the mating of queens at the home yard may be secured with almost *absolute certainty.* R. L. Taylor, in the February issue, describes an experiment made to determine if honey stored in the super of a foul-broody colony was infected with the germs of foul brood. In the March number, Isaac Lundy told "How to Get Drawn Combs right in the Sections, and Secure Comb Honey at the same Time." In the April issue, R. L. Taylor tells at what a high temperature he kept his bee-cellar last winter, and the results. The June issue contains a long article from Mr. Lundy, explaining his methods, and giving the details of a plan whereby he secures drawn combs during the white-honey harvest. Of course, there are other articles, editorial comments, extracts, notes from foreign bee-journals, Hasty's "View of Current Bee Literature," etc.

The *Review* is $1.00 a year; but for the sake of getting new subscribers I am offering it for 1897, and 1000 first-class sections, for only $2.50; or the *Review* and a Bingham Conqueror smoker for $1.75; or the *Review* and a fine tested Italian queen for only $1.50.

W. Z. HUTCHINSON, Flint, Mich.



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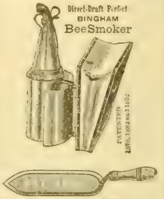
Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer, I write for a circular. I do not think the 4-inch Smoke Engine too large.
January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

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STRAY STRAWS
FROM DR. C. C. MILLER.

YELLOW SWEET CLOVER blooms about two weeks before white sweet clover, according to J. L. Gandy, in *A. B. J.*

GARGLE for sore throat.—Salicylic acid and borax, one-half drachm each; honey, one ounce; water, eight ounces.

TO TAKE GREASE out of cloth.—Take 8 parts alcohol, 6 parts honey, 5 parts soap, 5 parts water. Wet the cloth with this solution and rub lively. Keep the mixture well corked.—*Mode Francaise.*

WHILE IT'S TRUE that stoves may have done more harm than good in bee-cellars, it needn't be so. You can do mischief with almost any good thing by using it wrongly. But an oil-stove isn't a good thing.

"INSIDE FURNITURE" is all right for what the hive contains before bees have ever occupied it, but I think what R. Wilkin wants is a term to include bees, comb, and brood. [What does R. Wilkin want another term for?—ED.]

"WOULD YOU USE sections with foundation put in them two years ago?" is asked in *A. B. J.* Of the 23 repliers, only three say no. Several advise warming in sun before using. I wonder if they won't be warmed by the bees sufficiently.

IN THE STATEMENT, quoted p. 423, that "the nectar gathered by the bee is a secretion in which we may expect to find the essential virtues of the plant from which it is obtained," I wonder if imagination has not been allowed considerable play.

ANOTHER DRAWBACK to the plan of fastening queens in hives that A. Getaz might have added, p. 413, is that sometimes, after they have swarmed times enough, several swarms will settle on a tree together, and sulk all day. I *think* they'll do it without a queen.

AN EDITORIAL in *A. B. J.* shows a strong leaning on the part of the editor toward the view that every beginner in bee-keeping should have a text-book. If I couldn't have both a bee-book and a bee-journal I'd get the book first, and then pawn my watch for a journal.

"DON'T TRY TO GO too fast into bee-keeping. Better grow into it," says Editor York. Sound advice. [That is true; but many a man does not believe it in actual practice; or if he does, he shut his eyes and jumps—all the more reason why such folks should be *made* to open their eyes.—ED.]

PROF. COOK thinks the old Union ought to make a big fight against adulteration in California. He says, in *A. B. J.*, "The Union has got to *do* this, or something akin to it, or else it will be dissolved and possibly merged into the other organization." [Prof. Cook is right.—ED.]

FOR YEARS I've kept my bees in two cellars. I thought they had better air than in one. But it's less trouble to have all in one cellar, so last winter I put all together; wintered splendidly, and had fire only once, just for five days. I think G. C. Greiner is right in wanting a cool cellar filled up. [A good point. Those who cellar their bees next year would do well to bear it in mind.—ED.]

DOOLITTLE, p. 414, has given an unusually full collection of plans for managing after-swarms, and he might have added two others. Except for the trouble, there's no better way than the old box-hive plan of returning the swarm as often as it issues. One of the best plans is to hive the swarm on the old stand; set the parent colony beside it, then set the parent on the new stand a week later.

A COMMON OPINION seems to be that, when you take away a queen, the bees in their eagerness to replace her make use of larvæ so old that a good queen can not result. I'm skeptical. In hundreds of cases that I have observed, the queen rarely emerges before the eleventh day from removal of queen, making the larva only one or two days old at time of queen's removal. [You are right, doctor, according to my experience.—Ed.]

I HAVE ONE of the late smokers with grooved bellows-boards, and as yet see no objection to it. On the other hand it's refreshing to weary muscles to handle it, and the grooves will save the smoker many a fall. [The new grooves in the boards are a great comfort, and we shall adopt them in all our smokers as soon as possible. They cost but little and are a great convenience, especially where one's hands are sticky with honey.—Ed.]

TO THE QUESTION, whether it's best to use drawn foundation in sections, repliers in *A. B. J.* assume more or less of a "don't know" attitude, with a preponderance toward giving it a fair show. [Even those who answered unfavorably, in some instances at least, would have given a different answer had they seen the article itself. A case in point is that of Mr. McEvoy, mentioned on page 456.—Ed.]

THE *American Bee Journal* and *Canadian Bee Journal* agree that they are not called on to help every new enterprise in the way of a bee journal; but *Review* thinks it would be impolite to refuse a free ad. to an intending rival. [GLEANINGS takes middle ground. It believes in recognizing real merit, from whatever source it may come. At the same time, it also believes that possibly more harm than good is sometimes done by recognizing journals which are not yet out of their swaddling-clothes.—Ed.]

CURIOUS how persistently some passages of Scripture are incorrectly quoted. There's that one on p. 414, "A wayfaring man though a fool need not err therein." Just half of those ten words are like those in Isaiah, which reads, "The wayfaring men, though fools, shall not err therein." [What harm is done, providing we get the *idea*, the essence of the truth, and live up to it? I am one of those unfortunate persons who can not quote Scripture correctly to save my neck; but I can generally remember the idea, and that is worth tenfold more than the exact language without the thought. It is better, I grant, to remember both if one can.—Ed.]

I'M SORRY TO SAY that, although my horses eat a little sweet clover green, they don't like it as well as grass. It seems to go better dry than green. [For policy's sake, doctor, perhaps I ought not to publish the above; but I am going to give it a place all the same. Let us always have the truth, no matter which way it cuts. Did you ever taste the leaves of sweet clover then those of *other* clovers? You will find that those of sweet clover have a bitter taste, or at least a pungent weedy flavor that the others do not have. If the "likes" of horses is similar to mine I do not know that I blame the horses for manifesting their preference. The flavor of the leaves is a little like the taste of sweet-clover honey. This, while it is nice white honey, and brings a good price, can not rank with the honey of other clovers. But all the same we should remember that sweet clover is the only fodder that will grow in some parts of the west, and as such is an invaluable crop.—Ed.]

A WRITER in *A. B. J.* condemns the bee-space in bee-hives as causing a loss of heat, and in a subsequent number W. Z. Hutchinson comes vigorously to its defense, thinking there can be no great loss of heat if it only escapes from one part of the hive to another. Not much danger the bee-space will be given up. [I should like to see the man who could be really good-natured all the time, and get along successfully without bee-spaces in hive-construction. There is hardly a single feature in modern apiculture, to my notion, that is more essential. We could almost as soon dispense with movable frames. —Ed.]

IF YOU HAVEN'T yet seen crimson clover, it would make you open your eyes to see the beauty of my patch now in bloom. It's well worth a place in the front yard. [A big field of it looks better, doctor. In fact, my eyes are now resting on one within a stone's throw. It's the town talk now, and, oh how the bees do hum on it! I verily believe a given acreage of crimson clover will furnish more nectar than any other plant. It is a more rapid grower than any other clover, yields honey before any other, has larger heads than the white, and short flowrets. Surely a great future is in prospect for crimson clover, both for the farmer and for the bee-keeper. Say a good word for it wherever you can, brethren—at conventions, anywhere; and if you do not succeed in growing it, learn how. *We* make it grow every year.—Ed.]

I FOLLOWED you with much interest, friend A. I., on page 427, as you watched all night for the frost, and felt quite relieved when you got through safely without the expense of moving those 150 sashes; but I couldn't help wondering if your wife didn't think your broken night's rest fooling around in the chill night air was paying just a little too much for all you saved. [Why, dear doctor, you seem to forget that I take a nap every forenoon and another nap every afternoon; so if my sleep is cut short a little I just make the afternoon or forenoon nap a little longer. See? Another thing, I am usually awake by daylight, or a little after, the year round. I do not always get up, of course, as soon as it is light, but it is not very much of a task for me to get up as soon as I can see, if any thing happens to require it; and I make it up somewhere about 10 or 11 o'clock, as I have mentioned.—A. I. R.]

Ridge-Pole Musings

By R. C. Aikin.

MARKETING HONEY.

In a preceding article, on page 407, I discussed this question, showing that there was no *regular package* or method of getting extracted honey on the market in shape to retail. We have the wholesale packages that are all right for the bakers' and manufacturers' trade; but what we want is a strictly retail package—one that can be both wholesaled and retailed. I suggested that the honey be canned as fruit and vegetables, crated as they are, then it can go through the regular trade channels. If we do this, there is the

CANDYING QUESTION.

I have been making it a practice to sell all my extracted honey liquid, both wholesale and retail, except to those who wanted it otherwise, or who were prepared to liquefy for themselves when they wished it so. I have had local customers who would take it as quickly candied as liquid, and some who preferred it candied. There are two main reasons for putting it out liquid; viz.: If in wholesale package, the purchaser will want it so he can draw it out for retail. Few who buy at wholesale are prepared to liquefy, and neither the dealer nor consumer, as a rule, knows how to *properly* liquefy. It would not be a hard matter to educate the dealers to do the liquefying; but suppose they do melt it, it will candy again if not soon used, so, after all, the consumer has to liquefy—rather *reliquefy*. If, then, the consumer must liquefy, why not do away with the whole matter, and, just as soon as the honey is extracted, put it in small cans of, say, 1, 3, or 5 pound sizes—or, possibly, better only two sizes, say 3 and 5 pound? Let it candy, and let the consumer follow printed instructions and liquefy for himself; or, if he prefers, use it in the candied state. This would save the darkening and flavor-killing process of so many meltings. Just give the people a chance to buy honey at or near the price of other sweets of similar grade, and they will soon learn to do the melting. If only she had or could get it, would not every housewife soon learn how to prepare honey? It is an insult to the intelligence of our women to say that they would not learn to liquefy honey when every can has plain instructions on it. They will learn it as they learn how to prepare the many kinds of food products. If anybody doubts this, just let him establish a trade on honey in candied form; *always* have the article at regular trading-places, at prices that will compete with other sweets of same grade, and I am sure he will find customers; but rest assured that, if you are constantly changing size, style, and cost of package, and do not keep the goods always on hand to be had when called for, you will soon lose your trade.

Mr. J. L. Strong, of Clarinda, Ia., who has been for many years producing honey there, tells me that, by a little instruction now and then to his customers, they soon begin to call for the candied honey, many preferring to use it that way. No, no, friends; the people are not so slow to use our products as we are to put it in proper shape and get it to them. They want it so they can buy it at the stores with their other purchases of groceries, and we must put it there.

Last year a number of Colorado apiarists talked very seriously of organizing a company and buying honey-cans in car lots, putting up our own and neighbors' honey. In correspondence with one of the most extensive honey-dealers in Chicago they said they would not take the responsibility of selling such goods; but if I would make a start and put up my honey that way they would try to introduce it. The plan we had in mind was to organize and get a registered trade-mark, put the goods out under an association guarantee, and that all goods should be standard grade. On account of failure of crop, and the heavy loss of bees from some unknown cause, the matter was dropped. I am very much interested to know the outcome of the efforts of the California association. Very few men produce in quantity to undertake any thing of the kind; but by organized effort there could be a great change wrought, and much good done. Let me here repeat what I said in the previous part of this discussion, that there is not honey enough on the market to make it an object for people to invest in honey-depots or packing-houses, or to get the product properly before the public.

HOME MARKETS.

Last year—1896—I had a very light crop, amounting to two tons or less. As I wanted to get off on our tour in the wagon, I wanted to dispose of the honey as quickly as possible. I found the quotations were from 5 to 7 cents, delivered, in the wholesale markets. Freights to Denver are about ½ cent, and to Chicago about $1 90 per 100 lbs. If I sent the honey to these markets, and took what was left after freights and commission were out, I should have only 4 or 5 cents, to say nothing of cost of cans, and the risk. If I left the honey for some one else to look after, the liquefying and bother would eat up a large per cent of it. I had sold much more honey the previous year than my present crop, right at the honey-house, at from

6 to 8 cents. So I said if I must sell to Denver or Chicago at 6 or 7 cents less freights and commissions, I would let the people at home have it just as cheaply as some commission man. I then advertised that I would sell from the honey-house in any amount at 6 cents if purchaser brought his vessel; but if I furnished the vessel I would charge its cost extra. You see, the poor family that could not buy 50 pounds could get 5 or 10 pounds at the same rate as the more wealthy. I sold the crop out in a very little while, it going about as fast as I could extract and get it ready.

I suppose many would tell me that I was ruining prices by putting the price so low. Let me explain that. If I had been staying there right along I could have sold the crop during the year at about 8 cents. The reason I say 8 cents is because sugar can be had at about 6 cents, and makes a very good syrup; and if I get too much above the price of sugar I should lose the trade of all but those who will pay more for the honey because they like honey better than sugar syrup; but to those who must economize, the cheaper sweet would take the preference. In order to get as much as possible into the poorer families, and to insure sale, I put the price at only 6 cents, which was better than 7 cents in the city markets, because it was net price. In fair to good seasons there is much more honey produced in my locality than the local trade will take. I have sold quite a little to peddlers who go to the mountains, and to localities where there is no irrigation. The question practically is, whether I shall sell in the home market as cheaply as in the cities. If I make the local price about a retailer's commission above what the honey would bring at wholesale I have not damaged myself, and have marketed more of the crop at home than I could have done at higher prices. If the local demand is greater than the production, and honey is shipped in to supply the deficit, then it is proper that our local product be sold at the price the foreign goods must bring to pay first cost, freights, and commissions. As my locality does not import any honey, but, on the other hand, I must export my surplus over local demand, it is but just and right that I put the price to the local trade just enough above wholesale to pay me for dealing it out. This will increase the local demand, and in so far relieve the pressure on city markets.

That our local markets are not properly worked, I am sure. We must "introduce" our goods; and, when once we have a trade, *keep it supplied.* Remember that the dealer who gets the business is the one who keeps the goods wanted, and at reasonable prices. Will not some of our men of means take up the matter of packing honey and establish houses in all producing districts to handle the surplus product in those fields? We *must* have something of this kind, regular standard packages, and our goods put before the people in a systematic way, or we must be content to sell locally, and raise or lower the price as we may have a small or large crop. These are my conclusions after studying the problem for several years.

Loveland, Col.

[I question whether we could get the general public to look with very much favor on a package of extracted honey that is candied—one that must be brought to a liquid condition before it is consumed. However that may be, I think you are exactly right in urging the importance of a uniform package; and if some organization does take hold of it, the A. I. Root Co. will. If there is a demand for it, we will place on sale at our various branch offices and depots fruit-cans of a standard size, in car lots; but before we can go into any enterprise as gigantic as this, we must have the assurance that bee-keepers generally would accept the standard can used by all fruit-men. In the mean time we solicit the opinions of the brethren. The standard fruit-can package in question is the one described in our last issue, page 409. It has no patent fastening or screw-top, but is simply a common fruit-can that is sealed by soldering. For this reason it should be put on the market considerably below the cost of ordinary self-sealing packages of equal capacity. We are at present writing for prices.—ED.]

HOME-MADE VS. FACTORY-MADE FOUNDATION.

SECTION-PRESSES, ETC.: THE EDITOR'S STATEMENTS CRITICISED.

By F. L. Thompson.

On page 318 a footnote says, speaking of the Rietsche press, "At present prices of foundation, no bee-keeper could afford to make his own, especially if he could turn out only 150 sheets an hour."

Beeswax in Cleveland and Cincinnati is quoted highest at 25 cents a pound in that issue of GLEANINGS. Suppose one makes his foundation as thin as 8 L. sheets to the pound. This grade, when bought, costs 42 cents a pound in quantity. By making one's own foundation, 17 cents a pound is saved, and 150 sheets of foundation an hour means 18½ pounds per hour worked, or $3.14½ per hour, or about $25.00 per day saved—say $20.00 net, so as to take account of the fuel, lubricant, interest on value of all articles used, etc. If I could do one quarter as well, and save $5.00 a day, I should feel as if I were making money. And yet, "no bee-keeper could afford to make his own!" Mr. Editor, you could not have been thinking of the bee-keeper, but of the big supply-dealer, when you wrote those words. What is "altogether too slow" for the latter is extremely fast for the former. Consider, too, that the press (or, rather, mold) is very easily worked, does good work, and turns even small portions of wax to account. (It has been improved of late). It is hard to understand why it would not be a most profitable investment for the *bee-keeper*—not the supply-dealer. It is true, its product soon becomes brittle if stored away; but its other advantages completely destroy this objection; for if the foundation made from it is used at once it is not brittle; and when the machine is right at hand, and works up even small quantities with ease, it pays to make foundation only as wanted.

I must also question the footnote on page 320, relating to the use of combined machines for folding sections and fastening foundation, saying, "We find the two are more rapid, simpler, and cheaper than any combined machine we have ever operated." If you find it so, that simply proves that your operatives are accustomed to separate machines. Let a man work long at one thing, by the piece, and he inevitably acquires great dexterity. Let him then try to accomplish the same thing by another method, even a superior one, and a few hours' or a day's practice is entirely inadequate to enable him to equal the speed of the method which has become automatic with him by long practice. But is that a fair test? Of course, not. Equal familiarity (so far as that has a bearing on speed) with both methods is absolutely necessary before pronouncing judgment. I have never used the Daisy foundation-fastener, but have one before me as I write, also specimens of its work. On comparing it with the foundation-fastening portion of the machine which I use, I find it impossible to believe that it can do quicker or better work, if as good. But with the machine I use, there is the distinct advantage that one does not have to handle the sections twice in their passage from the crate to the super. There is no getting around this; and when both portions of the machine do just as good and as fast work, separately, as the separate machines, it follows with mathematical certainty that, when one handling of the sections is saved, the combined machine must make better time when there is the *same degree* of familiarity with the combined and the separate machines. Of course, one of your crack workmen might beat me with the Daisy and the Hubbard, or, with a few hours' test of the combined machine, might not equal his record with the two former; but such comparisons would be obviously unfair. Little influences which are hard to describe hamper one's agility in changing from one machine to another. A good performer on the organ can not do as well on the piano unless he has practiced the piano also, and *vice versa.* I can do faster work with the combined machine (the Rauchfuss, which, by the way, you have never tried) than with the separate machines I have tried, and that settles it for me; and I feel sure the average bee-keeper, approaching the separate and combined machines with the same degree of practice or non-practice, will have the same experience, and vote the latter ahead.

THE GRANULATION OF ALFALFA HONEY.

On page 321 it is claimed that alfalfa extracted honey does not granulate on account of locality, but on account of lack of "body." This seems a natural inference from the (somewhat meager) circumstances given; but I know the writer is mistaken. There are plenty of progressive bee-keepers in Colorado, though he seems to doubt it. That "body" depends on the handling is one of the A B C's here, and the handling is as well understood as in any State. I never extract before the cells are completely capped, if I can help it, and am in no particular hurry to extract then, if combs are numerous enough to tier up with. Moreover, I have frequently extracted from combs which have been two months or more over the bees since being capped. The "body" of such honey can hardly be surpassed. It is difficult to extract at all. But this very honey, kept separate in a reasonably warm and dry place, granulated just like the rest—generally sooner, if any thing, perhaps from some admixture of fall honey. Extracted fall honey here granulates much sooner than early honey of the same degree of ripeness (though the early honey is really inferior in body), showing conclusively that something else than handling influences granulation here; and if by "handling" is meant heating as soon as extracted, that also is known here, and practiced by some; but, with a few exceptions, it only delays granulation, and does not prevent it.

This leads me to say that I rather doubt whether Dr. Miller's scheme of draining off the liquid part would work with alfalfa honey, it candies so uniformly, reminding one of solid lard rather than any thing "granulated." I have frequently noticed, though, that some honey in the combs granulates coarsely, here in Montrose Co., as well as around Denver. But such honey is generally, perhaps always, of a golden yellow, and I think is always stored in the latter part of the season, containing a large per cent of something not alfalfa honey.

Montrose, Cal., May 28.

[Your implication, that my statement in reference to the cost of foundation was made on purpose to favor the supply-dealer and not the bee-keeper, is a sort of "left-handed compliment"—that is, if you mean I would be willing to twist the truth for the sake of booming our wax-working department. I shall assume, at all events, that you did not mean to hit as hard as this. I have endeavored, so far as possible, to have the truth come out, let it cut where it may; but when the truth favors *both* the bee-keeper and the supply-dealer, I can not see any harm in giving emphasis to it. I believe that nothing would kill a journal quicker than to have it give one-sided truth, and that favoring some manufacturer. Realizing this, it is our constant purpose to make GLEANINGS give impartially all sides of important questions.

In regard to the point at issue, I think I can show you that you are away off in your figures. You do not say anywhere that you have actually tried the Rietsche press yourself. If you have, it is likely you would have said so. But if you have not tried it, you are basing your argument, not on what you actually *know* from experience, but on what you have read, or what you think would be true concerning the press. You say, "Suppose one makes his foundation as thin as eight L. sheets to the pound." Right here I can not help feeling that you are assuming that that number of sheets can be made with the press in question, for you say, "Suppose," etc. I do not say that this number can not be made under very favorable circumstances, and with a special press; but I do not believe that the average bee-keeper can produce that number of sheets. We have one of the Rietsche presses; and the best we have been able to make so far has been three sheets to the pound, L. size. And *such* foundation!—clumsy, and with a great waste of wax in the bases. With the directions that came with the machine, the manufacturer states that a kilo of wax will make one square meter of foundation. If I figure correctly, this would be the equivalent of 5½ L. sheets, nearly, to the pound. Is it not reasonable to assume that the manfacturer would place the number of square inches per pound at its highest limit? At any rate, it is altogether improbable that he would put the figure lower than could be secured by the average bee-keeper; yet you "assume" that *eight* L. sheets of foundation could be made per pound on the Rietsche press.

Now, I am going to "suppose," for the fun of it, that three sheets is all that you can make, for, in fact, that is all we have made with our machine. Allowing you a speed of 150 sheets per hour (which I think is altogether improbable), then you will have about 50 lbs. of wax worked up. This, at 25 cts. a pound, would be a total of $12.50. Allowing you 25 cts. an hour for your time, this would make the 150 sheets of foundation cost $12.75. That number of sheets of foundation made by a supply-dealer, just as good, and even better, without any unnecessary waste in the bases, and running *eight* sheets to the pound, would, at 42 cts., cost $7.87; or, in other words, you would be "in the hole" $4.88 per hour, or $48.80 per day, to say nothing of the cost of the press itself, and the mussing-up of things generally.

Perhaps you will say it is not fair to assume that only three sheets per hour can be made. Well, then, let us assume that five sheets can be made—nearly up to the limit allowed by the manufacturer: then you would make 17 cts. per hour *provided* you could turn out sheets at the rate of 150 per hour, which I very much doubt. But you say it is not fair to compare a less number of sheets per pound from the Rietsche press with the larger number of sheets per pound from the manufacturer. If the dealer's foundation is just exactly as good as and even better than the Rietsche, at the lesser weight, and costs less, I can not see that there is any thing wrong in the comparison

I did not dispute the figure that 150 sheets could be made per hour, on p. 318, that you refer to. It did not occur to me at that time how many it would make. While an expert might equal it under favorable circumstances, I doubt whether the average bee-keeper could make many more than a sheet every minute. With our press we can't begin to equal even that rate. We had trouble with the sheets sticking to the die-faces, notwithstanding we used several different kinds of lubricant.

The majority of bee-keepers who have used the modern roller machines, of which we have sold so many, and who are able with them to beat the wax-press all to smithereens in speed, have long since come to the conclusion that it does not pay to make foundation for their own use. It is an art—a trade in itself. If a roller machine can't compete with the large factories, how can an inferior cheap machine? In Germany, bee-keepers can not always be sure of securing pure wax in the foundation procured from supply-dealers in that country, and hence has arisen this demand, I believe, for a cheap machine to make their own foundation of their own beeswax.

With regard to combined section-folders and starter-machines, perhaps you have not had the experience we have. We have carefully tested every machine that has been sent to us; and I have always told our workmen that we desired to have them test the machines carefully; and in every case we found we could operate not only much more rapidly, but do better work with our two machines. All the combined machines I have ever seen take too much physical power to fold the section, and even then they do not do a satisfactory job. The Hubbard machine makes use of a long toggle joint, by means of which great power is secured with a very small expenditure of effort on the part of the operator. Even if the combined machines would do the work more rapidly, we should still prefer the Hubbard on account of the superiority of the work. You admit yourself that you have not tested the Daisy machine, although you have one before you. Perhaps you have not tested the Hubbard. If not, then I can hardly see how you are any more unprejudiced in the matter than we are. Theoretically a combined machine ought to do the work more rapidly; but in actual practice it does not do so—in our hands at least. We have had parties write to us before now, praising the merits of their combined machines, for they could do a certain number per hour—that is, fold and starter the sections. It has been a little amusing when we have compared their figures with those from our two machines, with which we doubled and trebled their best speed. Assuming that the inventors of these different machines were reasonably expert in the use of them, they ought at least to be able to turn out within 75 per cent of the best output of their machine. By giving their machines credit for doing at least 25 per cent more, even then we have in every case been a long way ahead. I do not know whether I have tried the machine you refer to or not—I think not. If you can do better and faster work, I should be very glad to know it. We are constantly looking for the best in apiculture, and should be glad to know more about it.—Ed.]

EXTRACTED HONEY.

HOW WE RUN OUR BEES TO PRODUCE IT.

By F. A. Snell.

Each bee-keeper has his own favorite way, and I will give ours. In the extracting-supers we use the same comb-frames, or those of the same size as used in the brood-chambers. We make it a point to remove from the brood-chambers all frames containing a large amount of drone comb, and put in their place good worker combs. By so doing we have but a small number of drones reared, or not more than desired. These drone combs are used in the supers. Just before the surplus-honey season opens we look over all these supers and see that no spider-webs or any thing objectionable is present. The bits of comb, if any, are removed, frames are put back in place, and these are ready for the bees. Our queen-excluders are brought from the storeroom. The smoker is lighted; the bees are given a little smoke, the excluders placed over the brood-chambers, and one super or story is put on over an excluder on all colonies to be run for extracted honey that are strong enough to need extra room. Later, as other colonies become more numerous they are given a super each.

Many years ago we practiced equalizing brood to some extent in the spring, with a view to uniformity in strength, but have not done so for about twenty years. We do not believe in pulling down a good colony to help a weaker one, only to save a queen that we may prize. After the honey-flow fairly opens we make it a rule to see what is being done in the supers or colonies not yet having extra room, so that, if more room is needed, it may be given at once, never allowing a shortage of room for storing. In doing so, two objects are desired. One is to discourage swarming from overcrowding; the other, to secure the greatest amount of surplus honey. We run all colonies two and three stories high, or one or two supers on each hive of full-depth combs during good honey-flows. When the shaking-off plan is practiced we have two men in the bee-yard. Extra empty combs are at hand. Man No. 1 opens the top super, or the one with the well-ripened honey; removes the combs and hands them to No. 2, who shakes off the bees at the hive-entrance, brushing off the few remaining ones with a brush made of asparagus-tops; places the honey in an empty hive-body on the cart. The one who opens the hives removes the filled combs and places empty ones on the hives, and stands behind the hives, the other in front. As soon as the bees are shaken off at the hive-entrance he steps back a few feet and puts the combs in the empty story. When the honey from the first hive is on the cart it is run to the honey-room door, and the honey carried in. Man No. 1, after filling the first super with empty combs, shuts up the hive and opens the next hive. This man keeps the bees under control by using a little smoke as needed. The cart is run back to hive No. 2, with a set of empty combs, and so the work proceeds in the yard. The one in the honey-room removes the combs from the filled super, which was placed, when brought in, on a bench about 18 inches high, with two one-inch strips running lengthwise at each side on top, on which the supers are placed, giving room for the fingers in placing and removing under the sides of supers. Three supers single-tier, or six double-tier, can be so placed if it is desired.

The one in the honey-room does the uncapping, extracting, and pours the honey into the large cans or barrels, using a cloth strainer at all times, which excludes all except the honey. We use an uncapping-can in principle like the Dadant. When the apiary has been gone over, third stories are placed on all the stronger colonies. As stated in a former article, I now prefer to use the escapes as there mentioned to the shaking-off as herein described.

To those not experienced, and who have no escapes, the hints here given may be of some value. In a small apiary the bee-keeper can readily do all this work where his time is nearly all devoted to his bees.

The use of a great amount of smoke in handling bees should be avoided. A little at a time is usually sufficient. A great amount of smoke will injure the flavor of the honey. With escapes, very little if any need be blown on the combs when extracting, which is another point in favor of their use.

Milledgeville, Ill.

BEE-PARALYSIS.

ANOTHER CURE; A GLEAM OF HOPE.

By Joseph Monnier.

Last fall my prospects as a bee-keeper were very unsatisfactory by reason of "paralysis" among the bees, nearly my whole apiary being infected. The bees had a greasy appearance, and were dying in front of the hives by thousands, and I thought seriously of giving up the business. So, just before starting for Miami to pass the winter, I doubled up several of the very weakest and left them for all winter in discouragement.

About the first of last March I went to take a look at them, and found about half of the colonies entirely dead, and the others very weak; but I was surprised to see the hives I had doubled up. They were as strong as any I ever saw—had a bright healthy color, and not a sick bee. They were full of honey. This set me to thinking, and I formed this theory:

The bees were loath to kill off their own sick brethren, but killed the sick strangers without mercy, and thus threw off the disease; so I went to work and put two colonies together, where I thought they were too far gone; and where they still had enough bees I simply changed their places, putting No. 1 in the place of No. 2, and No. 2 on the old stand of No. 1. I did this in the middle of the day, when the bees were at work, also shaking some combs of bees before their entrances, so as to mix up thoroughly the bees in both hives. The results were astonishing. They went to work on the sick bees and in a few days I saw a marked improvement; and now my apiary is as healthy as any I ever saw. I have already extracted 550 gallons of honey, besides increasing my bees back to last fall's count. The bees are bright, full of life, and are as cross as any I ever saw. All a hive needs is bees from another colony, to cure themselves. So sure am I of this, that, if I were buying bees now, I would not discount them on account of paralysis. If, as you say, it may come again, let it come. It doesn't take long to apply the remedy; and if you could see my bees now it would be difficult for you to realize the condition they were in only three months ago.

Please let the brothers know of this remedy, and I shall feel myself amply repaid if those who are benefited by it will write me and acknowledge the fact.

Planter, Fla.

[Bee-paralysis has been one of those difficult diseases to cope with, first, because we hardly know what it is; and, second, hitherto no suggested remedy has worked invariably; and all of them, sooner or later, have resulted in failure with nearly every one. But your manner of treatment affords us a gleam of hope, both for what it has done in your case, and because, from a sanitary point of view, it looks reasonable. Good sanitation nowadays means separating the sick from the well — at least in cases of contagious diseases; and this is the whole secret of your method of cure, if I am correct. Under ordinary conditions a colony will not kill off its sick when it becomes weakened down; but by mixing the races, as it were, family ties have no particular influence, and then it is that the sick are separated from the well, and Nature does the rest. Although, as I said, friend M.'s treatment gives us a gleam of hope, yet not until I shall find that it works with equal success in the hands of others as well shall I begin to believe that we have a real cure for bee-paralysis.—ED.]

BEES AND GRAPES IN CALIFORNIA.

DAMAGE DONE BY BEES INFINITESSIMAL.

By F. D. Lowe.

On page 223 I see an article from G. F. Merriam, relative to bees and grapes in California—their harmony with each other, etc.; and, further, that you solicit such valuable testimony from that source where it has been said that bees were a great detriment to the fruit industry.

I will just say that I happen to be in that particular locality. The principal fruit grown there is the muscat grape, which is made into raisins. Also large fields of alfalfa abound here, and, of course, the honey-bee has claimed a home. Apiaries of 150 colonies, more or less, are located from ½ mile to 1½ miles apart. On my ranch of 60 acres I have 25 acres of muscat grapes, which I convert into raisins. In the center of this vineyard I have an apiary of 115 colonies in Jumbo hives.

About the 10th of September the grapes are highly sugared, and are then picked and evenly laid on trays of 25 lbs. each. Immediately after these trays are delivered over to the heat of the glorious sun they are all visited by a merry gang of bees; but, watch them closely for a few minutes. Here and there they dart with vivid rapidity, for they seem to scent something that is sweet. In the picking of the fruit there will always be a few grapes that have lost the minute stem that holds it, and the delicious nectar has begun to ooze, and the bee has claimed it for its own. There are also some grapes that are bird-picked, and the bees proceed to finish them, leaving nothing but the hull, which the grader always blows over.

So far bees have done no damage to my raisins; but I do know that some people here have been so zealous they actually gave testimony that the bees were boring right through the skins, when, in fact, the puncture was always made by something else.

Among other fruits I have apricots, and as yet the bees have the first time to molest them in drying time.

The damage done to raisins by bees is so insignificant that it is hardly worth mentioning.

On page 320 you have illustrated a huge machine in the shape of a section-press and foundation-fastener combined. It has always occurred to me that the essential thing in modern inventions that counts best is speed. There is no question in my mind but that the Daisy fastener caps the climax over all; and the strangest part of all is that more prominent bee-keepers do not use it. As for his section-former, there is unquestionably too much material in its construction. I have a press, the invention of which is original with me—is the simplest device that has come to my notice. Regardless of its merits and demerits I desire you to know that I have attained a speed on it of 1000 per hour. Its work is first-class, and, like Mr. Aikin's machine, there is only one made, and it is not for sale.

Rosedale, Cal., May 24.

[If you do not object we should be glad to receive a photo or drawing of your press, together with a short description. With no desire to throw your feat in the shade, I would simply state that one of our girls folds, with the Hubbard press, 1000 sections in 40 minutes, and this is her average right along. She has folded 500 in just 15 minutes.

Thanks for testimony regarding bees and raisins. It is another clincher among scores of others of similar character.—ED.]

THE BEE-KEEPERS' UNIONS.

IS THERE NEED OF TWO SUCH ORGANIZATIONS?

By Prof. A. J. Cook.

Dear Editor Gleanings:—I like the thought and spirit of your editorial in which you urge that there ought and must be no feeling in the matter of the old and new Bee-keepers' Union.

I do not, however, agree with you that there is room for both organizations. We as bee-keepers are not numerous or rich enough to maintain the somewhat expensive machinery of the two organizations. One or the other, I believe, will soon cease to be. I think so, because I believe there is no excuse for both.

The first proposition, that there should be no ill will or bad blood, is too abounding in good sense to admit of argument. The day of animosities and invective among apiarists is long past. You remember, Mr. Senior Editor, when you and I first put hands to the apicultural plow, before the '70s, how much of rancor there was in our ranks. You remember the storms in the days of the Cleveland convention, when you and I first met. Happily that spirit and feeling are wholly gone. Surely happily for us, for I veritably believe that, if it had not gone, *we* would not have come. You, my friend, have done much to bring the better day; and God be praised for the success. No, we have no time or room or appetite for aspersions or ill will. A letter from Manager Newman, of the old Union, leads me to conclude that there is a serious misapprehension among the members of the old Union. I certainly did not understand the matter; and if not I, an officer, then probably not many of the others.

Mr. Newman says the old Union can not attack any evil but such as it has combatted in the past. Thus it can not fight adulteration. The last vote, he says, has settled that question. Now, I did not think our vote took any such effort from the hands of the Trustees or Executive Board. If so, I am not sure but, on the plea of "self-preservation," we should disregard such vote, for the old Union has *got* to fight living issues, or die. It can not live on its past record, excellent as that record is; nor can bee-keepers afford to support two unions. Such action is senseless, and bee-keepers have sense. I voted against amalgamation, not because I objected to it personally, but because I believed quite a number of the members did oppose it as unwise; and it seemed to me that, when men had joined an organization, and paid money into its treasury, we should not change that organization unless the vote was nearly or quite unanimous. I was assured that a goodly number did seriously question the wisdom of amalgamation. I did not suppose I was voting to tie the hands of the Union, or confine its labors to lines no longer important.

As suggested above, I fully believe that one or the other of the present organizations will die. The division is expensive, has no excuse, and the fruits of one strong vigorous organization will be abundantly greater than of two struggling feeble ones. It will be a case of "survival of the fittest." Emerson said of the individual, "Not to change is to die." I believe we can say the same as truly of the old Union. Thus I wish to urge all the members of the old Union to write at once to Manager Newman, 2096 Market St., San Francisco, and urge that the Bee-keepers' Union at once grapple with the question of adulteration in California. If he replies that he can not do so, then ask that a vote be taken. We now have a splendid law in this State, and the people are alive to the iniquity of the business. A pure-food congress has just been held in San Francisco, and the people are fired with a sense of the enormity of the evil and the necessity of fighting it to the death. A vigorous blow struck now by the Union will do untold good, and will inspire people with the thought that it still has power, and is willing to show it by striking effective blows at any threatening evil.

Mr. Editor, I come to you, for I know you will heartily agree with this proposition. I hope you will urge its importance, and that action may be commenced at once that will incite the old Union to grapple with this monster evil. I have no feeling in this matter other than for the good of the cause. I take it no one has. I have already urged, in the strongest terms possible to me, in the *American Bee Journal*, that we take this matter in hand. May I not ask that you urge the Vice-presidents of the B. K. U. to write at once to Mr. Newman to commence action or else take a vote on the matter? We have a rare opportunity to achieve great good. We must not let it pass unimproved.

NOTES.

This bids fair to be an exceptionally good year, even for California. The large rainfall of last winter, and the genial warmth and sunshine, coupled with damp nights and absence of hot winds, almost insures a remarkable honey product in 1897. Already the crop has measured up well, and we are yet only at the dawn of the season. I never sampled finer honey than I have eaten this season—first from the orange bloom, and now from the sage.

The white sage is now in its prime, and the bees are jubilant as they fairly swarm upon the delicate flowers. The sage grows in long stems, and the bloom is in long racemes, which commence to blossom at the bottom, and open upward. Thus the plants are in bloom for long weeks. This is one reason why the amount of nectar produced is so great. I believe that this flower has few equals, and California climate is just the one to bring it to its perfection.

The above remark regarding the long-time bloom of the white sage is not alone peculiar to that plant, but is a characteristic of all of the California flora. Flowers that opened in February and March this year are still in bloom. Some of the most important honey-plants, like "California buckwheat," bloom for months. The blossoms are now out, and will be in December. I believe it is this duration of bloom that will ever place California at the extreme front as a honey-producing State.

I have seen and tasted comb honey the past few weeks that certainly was the equal of any I ever saw anywhere. Yet comb honey will never be the chief California product. The distance to market, and liability to break down in transit, the danger from insects, and the greater labor of production, and less yield, all give preference to extracted. Extracted honey, then, will always take the lead here.

Last year I handled several tons of extracted honey. There were only two complaints made; one that some of the cans were old; the other, that the honey was often mixed. This is important. No man can afford to put honey in old gasoline-cans, no matter how well cleaned or how cheaply secured. Sage honey is water-white; buckwheat, beautiful amber. The latter will never sell for so much as the former; therefore it behooves every bee-keeper to keep a sharp watch and not mix the two kinds; for all that contains the amber honey, even though in small proportions, will be discounted in the market. Carelessness in this regard will be expensive. Clean new cans and thorough grading will pay a tremendous profit on the extra expense.

It is reported that San Diego County will ship fifty carloads of honey the present season. It is probable that the other counties of Southern California will do as well.

This is a good year for testing the value of the Bee-keepers' Exchange. It is certain that this is a move in the right direction. Before many years all our industrial pursuits will have exchanges. Why not all join now and speed the glad day? The gain in purchase of supplies and in sale of product must be considerable. It is hoped that nearly all in California will join the Exchange.

Claremont, Cal., May 31.

[You are not the only one, Prof. Cook, who did not understand how he was voting on the question of amalgamation that was submitted time ago. I had hoped that it would not be necessary for me to say any thing by way of criticising the policy that Mr. Newman has all along pursued; but I can hardly avoid doing so if I explain *why* I can not fully fall in with the plan you have suggested.

A few years ago, you, with the rest of us, voted to have the constitution of the Union changed so that it could take up the question of adulteration, or, in fact, any question that might be decided upon by its officers. When it carried unanimously we thought something would be done. But Mr. Newman has persistently kept the old Union working practically along the old line of defense; and I see no reason for thinking he would not continue to do so as long as he is General Manager. For this reason we do not feel like using the influence of Gleanings in trying to force upon him the necessity of taking up adulteration in California, when he is so manifestly unwilling; for one can not carry out a plan that he is not heartily in sympathy with.

I feel that we must look to the United States Bee-keepers' Union or to the California Bee-keepers' Exchange for help in the manner you have indicated in your article. The same effort in those organizations, along the line of fighting adulteration at least, would be productive of much more good. Personally I should be glad if the old Union would help along the good work already instituted in California; and I am authorized to state that A. I. Root, one of the directors, would be in favor of having the old Bee-keepers' Union take up the line of work suggested.

There is just as much room now for the two organizations in the United States as formerly. If the old Union shall insist upon continuing in its old work, its field will be narrow. The new Union is practically the old North American, with added functions of usefulness. There has been room for the two organizations in the past, and I do not see why there should not be room for them now. I feel confident with you, however, that, if the old Union does not make a change, it will die a natural death, and a new one will take up the work along lines that are commensurate with the needs of the times.

I am glad to note that you, Prof. Cook, are heartily in favor of the object of the new Union as set forth in the constitution of the new one; and therefore it seems to me your efforts should be directed in the channels of that organization. While it will not be able to accomplish much the first year, it has a backing of men in it who will make it do something in the future if others will take hold and help with their dollars.—Ed.]

ANSWERS TO SEASONABLE QUESTIONS
BY G. M. DOOLITTLE, BORODINO, N.Y.

PREVENTION OF AFTER-SWARMING.

Question.—Would not a queen-cell just about to hatch, or a virgin queen, introduced into a hive immediately after its colony has cast a prime swarm, prevent after-swarming by the young queen tearing down the cells before they were ready to hatch? In this way would there not be a great advantage by furnishing the colony a laying queen a week sooner than they would otherwise have a laying queen, besides stopping after-swarming?

Answer.—The above seems very simple and easy to answer at first sight; but upon a closer look it will be found to embrace some of the most perplexing questions which ever come up to the thoughtful, practical apiarist. Let us look at the matter somewhat closely and see what we can find in the text given us. It is assumed that, if a queen-cell or virgin queen is given to a parent colony immediately after it has cast a swarm, said queen, from the cell or otherwise, will go to tearing down the queen-cells left in the hive when the swarm issued therefrom. This is not the first time I have heard this assumption; but it is rarely that a greater mistake is made; for in nineteen cases out of twenty, if the swarm is hived on a new stand the cells will not be torn down, and not once in five times where the old colony is removed to a new stand, the swarm being hived where the old colony stood — at least, this has been my experience in a practice of nearly 30 years. The bees do not want those cells torn down, for in them is cradled the choicest thing they have — that which they valued more than they did their own dear mother, and that which sent her out from her own home to seek a new one in some strange land; and if they considered them better than their own mother, are they now going to sacrifice them for any stranger, one on which they had bestowed no care or wish? By no means, only as they are forced to do so by being thrown out of a normal condition by having all of the field-bees drawn off by a removal of the hive from its old stand, or by the apiarist cutting off all of these queen-cells. And even in this latter case they will often kill the virgin queen given, or destroy the cell, preferring to rear a queen from their own sisters in the egg or larval form, which still remain in the hive, rather than to accept a stranger.

But, in passing, let me notice that expression, " the young queen tearing down the cells." We read it in this way more often than any other; but an experience of over a score of years (watching) along this line proves to me that, only where the queen has access to queen-cells without other bees, or in very weak nuclei, does she do the work of tearing open the cells, but the workers do it themselves. All know that, when the bees wish to protect these queen-cells, they can do it against the wishes of the most enraged queen; and when they change their mind they are just as ready to secure the destruction of the inmates of the cells as is the enraged queen; so all hands turn to, and the inmates of the cells are dragged forth and cast out of the hive, without even a single mourner. Whenever an introduced young virgin queen is accepted by the bees, of course the cells are all torn down and all after-swarming given up; but the rule is that it does not work that way, but the cell or queen is destroyed; and unless they conclude not to swarm when the first of the queen-cells left when the swarm issued hatches, after-swarming is the result, just the same as it would have been had we not given the queen or cell, and we find we have had all our labor of raising and giving the queen or cell for naught.

But, suppose we did succeed in this matter; would there be any gain aside from stopping after-swarming? Well, that depends altogether upon the locality, and the result in the end. With a continuous honey-flow from the time of swarming to the end of the season there would be considerable gain, provided the advantage were not lost by swarming again. With such a continued honey-flow the colony having such queen given to it would be far more likely to conclude to swarm again than would the one where the bees had their own way, and they did not get a laying queen till near the time the brood had all matured which was in the hive when the old queen left. The conditions bringing about prime swarming are, plenty of brood in all stages, *plenty of bees of all ages*, and honey coming in from the fields. With any of these lacking, prime swarms rarely issue.

Now, where the honey-flow keeps right up, and the bees take their own course, or all after-swarming is prevented by the apiarist cutting all cells after the first young queen has hatched, the colony is without a laying queen for from eighteen to twenty days, as a rule, which makes a break in the usual hatching of bees for that length of time, so that, when the bees from the young queen begin to emerge from the cells, the hive does *not* contain *bees of all ages*, hence such a colony rarely ever swarms again that season unless more prolonged than we generally have it in the most part of the United States and Canada. But where a virgin queen is given, this break in bees is not very pronounced; hence colonies having such queens given them are quite likely to swarm with a prolonged honey-flow. Where the honey-flow is mainly from one or two sources, as it is with us, I think such giving of a queen a positive disadvantage, for the larvæ from her eggs are fed on honey which the bees are gathering from the field, which otherwise would go into the sections, that these larvæ, when hatched into bees, may become useless consumers of the honey of the hive, they having come on the stage of action after the honey-harvest from basswood is past, and before fall flowers think of giving any honey.

Where the colony has its own way, no honey is consumed by larvæ for 20 days, hence that much more is saved, and the break in bees comes just at a time when they are not missed, no honey-harvest being on, with enough bees remaining to care for all the brood the young queen produces, and this brood matures into bees in just the right time to take advantage of the honey-flow from fall flowers. A " weather eye" sufficiently skilled to secure a maximum of bees just in time for the honey-harvest, and as few at all other times as is consistent with this object, is something worth coveting by every practical apiarist.

M. L. R., Pa.—Where a colony is very strong, having, as you say, half a bushel of bees, and the hive is of good size so as to give them plenty of room, they are not nearly so liable to swarm as where the colony is smaller and their quarters are cramped. The circumstance you relate of this half-bushel of bees not having swarmed for six years is perhaps a little out of the ordinary, but by no means rare.

Heads of Grain from Different Fields

APIS DORSATA: DR. MILLER'S POSITION EXPLAINED.

Mr. David N. Ritchie writes that he is not satisfactorily answered on p. 189; that I do not object to the importation of *Apis dorsata*, and that those who do object give no satisfactory reasons for their objections. He thinks it need not be an expensive job for the government, and especially condemns any objection that it would bring down the price of honey, for we should be glad to have the poor supplied, and hopes government will be urged to import the big bee.

J. S. Scott takes a different view, and says:

"If it is good policy to increase the production of honey solely for the good of the public by making it cheaper, why does our government place a duty on foreign honey?"

No doubt if all the bee-keepers would unite in asking to have the tariff taken off from honey the request would be granted. Mr. Scott says:

"Is it not likely that, if the giant bee should prove a good honey-gatherer, and, like the bumble-bee, be of no use to us as to the production of honey for use, *Apis dorsata* might also divide the honey secreted by other flowers frequented by our own bees?"

If nothing I have heretofore said gives friend Ritchie the impression that I object to the importation of *Apis dorsata*, I will here say that I do object in the most emphatic manner to their importation till it is first known that they can be domesticated—not on selfish grounds, for I don't believe *Apis dorsata* would live in Northern Illinois; and if they should hurt the honey crops of the South, that might benefit me. But if they can not be domesticated, I see no manner of use they can be; and I can see that, whatever honey an undomesticated bee should gather, would be just so much less to go into hives.

As I have already said, if the government is to do any thing about it, let the appropriation be doubled, if necessary, and let domestication of *Apis dorsata* be thoroughly tried in its own country; and when that is satisfactorily settled it will be time enough to bring it here.

But it isn't best to get into any heated controversy about it, for The A. I. Root Co. seem to have taken in hand to solve the problem as to domestication; and if the attempt to domesticate should prove successful, no doubt their enterprise will land the bees here before the government could decide what to do about it. Now, mind, I don't know whether *Apis dorsata* would be a benefit or a damage; but I do know that I don't want it here till we know we can control it if we get it. C. C. MILLER.

Marengo, Ill.

THE KEEPING QUALITIES OF PURE HONEY; THE CALIFORIA ANTI-HONEY-ADULTERATION LAW.

What have you to say as to the keeping qualities of pure extracted honey? A late issue of the California *Fruit Grower* has the following gem in the body of an article commenting on our new anti-adulteration law. Addressing the article to dealers, grocers, shippers, and handlers of honey, it says: "They can not put up an extracted honey which in any way is a compound, even though it be a fact that an absolutely pure honey is lacking in keeping qualities. They can not manufacture or sell a honey which is an admixture, no matter how innocent or desirable that admixture may be."

From all information obtainable I judge the alleged lack of "keeping qualities" is going to be the plea of justification for adulterating honey. I wish you would take the matter up and bring out all the real information, both scientific and general, within reach. Let us be forearmed. C. H. CLAYTON.

Lang, Cal., May 1.

[That sort of argument in favor of adulteration, coming as it does from a representative of the middlemen, is mere bosh. It looks a little specious on the surface; but the fact of the matter is, there is nothing in the world, in the way of sweets, that will keep better than honey. A few years ago middlemen tried to tell us that it was necessary to put in a little glucose, at least, to prevent granulation; but after having carefully tested numerous samples with varying amounts of glucose, I know there is no truth in it. The stuff has got to be nearly all glucose before granulation is held in check. California has a good food law, and I hope it will stay on the statute-books in spite of the soft-soap nonsense of the glucose sympathizers.—ED.]

THE PETTIT SYSTEM OF PRODUCING COMB HONEY; A CORRECTION; IMPORTANCE OF STRONG COLONIES.

Will you kindly allow me to trouble you and your readers with a few more words about my way of taking comb honey? I notice on p. 288, in Mr. Geo. G. Scott's very kind letter, a mistake that has crept in somehow. Mr. S. says, "The divider admits of two bee-spaces and the clustering of the bees therein, while the ¾-inch holes allow of easy access to either side." That ¾ inch should be $\frac{5}{16}$ inch. I beg to say that the system, for best results, must be used as a whole. Both the wedges and the dividers are indispensable for best results.

Another point: The bees must be strong. There must be bees enough to take possession of the whole super, or nothing will be gained—may as well go on in the old way. Now, if this statement is against the system, then so much the worse for it. I want to tell all I know concerning it.

The perforated zinc, as suggested by Mr. Scott, works well; but it is pretty hard to keep it straight. Only for that difficulty, and the

fact that it is not quite as warm as basswood, I should have advised the use of it for dividers.
S. T. PETTIT.

Belmont, Ont., Can., May 18, 1897.

AN IMPROVEMENT ON DUNN'S WHEELBARROW.

Tell M. H. Dunn that I think he can materially improve his wheelbarrow, illustrated May 1st, by cutting his cover in two, not having it hinged *to* his box. Use wire hinges where he saws it in two, so the lids (two half-lids) will fold over on to each other, out of the road. I make mine with a very light frame covered with drill, letting the rim of the frame project down on the outside of the box all around to exclude bees more effectually. The frame is stiffened by fastening triangular pieces of tin on the corners. His suggestion, to place the combs lengthwise in the box, is an improvement.
R. W. WILKIN.

Newhall, Cal.

NO PAPER IN FOUNDATION PACKAGES.

In "Stray straws" of May 15, as to paper between foundation, Dr. Miller asks, "What's it papered for, any way?" Well, I say for no use, for I made up 100 sheets one year ago, and they lay in a pile until a few days ago, and they were just as I left them, and separated as easily as the day I made them: and, still more, I had about the same number of sheets dipped and trimmed ready to put through the mill. They were laid up then, and a few days ago I examined them and found them as I had left them nearly a year before. I put them through the foundation-mill, and they were easily parted, and made fine foundation. No use for paper here in this hot climate. If I were ordering foundation I certainly would have the paper left out.

In Straws for May 1st it was said that, if the frames in the supers were crosswise of the brood chamber, the queen would not go alone. I shall try that soon as my hives are all square and will sit either way.

Prospects for much honey very poor here.
JOHN CRAYCRAFT.

Astor Park, Fla., May 25.

IN FAVOR OF USING PAPER IN FOUNDATION.

In regard to paper between sheets of foundation, page 362, I would say that from my experience with foundation in this climate, owing to the heat, and long distance it has to be shipped, much of it would get matted together, and be unfit for use, and have to be rendered into wax again, and sold at a loss to bee-keepers.
J. B. GRIFFIN.

Cat Creek, Ga.

HOW TO GET STOCK TO EAT SWEET CLOVER; BY A 12-YEAR-OLD READER.

Our bees came through the winter and spring all right. First swarm, May 18. We have a better prospect this spring for honey than we have had for many years. They are storing surplus from locust. We moved into this valley this spring, and found that there were but few bees here, and what few there are have very little attention. You can easily guess the result.

There is sweet clover along the road for four or five miles. No one seems to know how it got there, but I suppose some bee-keeper knows. Papa kept his stock on dry feed till they were nearly starved for something green. He thought they would eat any thing. When they were turned out on sweet clover they smelled of it and gave a snort and ran away for something else. So mamma cut some in a box and put some salt and bran over it, and they ate it all up, and have eaten it ever since.

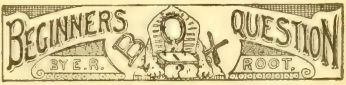
Bernadotte, Ill. NORA NEFF.

Big prospect for honey; it is coming in like an avalanche, working me a little above the upper notch.
M. L. WILLIAMS.

Maysville, Ky., June 8.

We are having a regular old-fashioned honey season. Bees are "just rolling in" the honey.

Morgan, Ky., June 8. J. P. MOORE.



M. D., Tex.—We can give you no information in regard to producing honey wine, or, as some call it, honey mead. We have never given any thought to this use of honey, as we believe there are other and better uses for it, both from a moral and financial standpoint.

C. H. G., N. Y.—There is no method that we know of for bleaching comb honey after it has once been taken from the hive. Comb honey in the first place should not be left in the hive any longer than is necessary to have the capping completed. This will prevent travel-stains.

W. W. Y., Ky.—Sometimes swarms in the air are very cross, and no definite reason can be given why they are so, unless they are vicious hybrids in the first place. Pure blacks or pure Italians, when they swarm, are usually quiet unless they are molested or jarred unnecessarily in taking the cluster off the limb.

R. T., Ky.—Transferring should usually be done before the honey season. We recommend fruit-bloom; but shortly after will do nearly as well, providing you do not get the bees to robbing. For particulars on how to transfer, see page 32 of catalog, also "Transferring," in our A B C book.

BEE KEEPER FRED ANDERSON OR THE Mystery of Crystal Mountain

By JOHN H. MARTIN.

THE passage through this portion of the mountains was merely an enlarged cleft; and immense layers of obsidian, like great sheets of black glass, rested against and were part of the mountain above. The tremors of the earthquake had dislodged one of these layers, and, sliding down, it had completely covered the passage. The heaving mass of mud and lava was now rising slowly but surely. All semblance of the beautiful valley had disappeared, and again the place was returning to its primeval condition—a turbulent volcanic crater.

The squaws, in weird tones, repeated their death-chant, Alfaretta kneeling near them, her beautiful face turned upward in silent prayer.

The rest of the party for a few moments were mute with their various emotions. Fred seemed to forget self, and to divide his attention between Alfaretta and the rising tide of destruction. Walking quickly to the sheet of obsidian that had cut off their means of exit he found that it was only two inches in thickness; then hastening along the terrace he luckily found a heavy iron bar that had served as a part of the elevator. With this he approached the obstruction on the run, and under his rapid blows it soon gave way and finally came down with a crash. Sam and Gimp were on hand with a shout, to help clear away the debris. There was hope again lighting up every face, as the exit was cleared. The doctor bade Alamantapola take the lead into the passage. Alfaretta followed, and, forcing every one hurriedly along, he brought up the rear. For a moment he looked back over the strange scene of desolation, and seemed loath to stir until Fred, retracing the few steps he had taken, urged the doctor to hasten.

"I can not help looking back," said he, sadly; "and my memory always will look back longingly to what was once my beautiful valley. Our loved ones, our homes, our things of beauty, our attachments to earth, must all be taken from us."

"But, doctor," said Fred, "we can not think of these things now. We must hasten. See! the boiling mass is near our feet now, and there may be other obstructions in the passage."

"True, true," said the doctor, sadly, and hastened with Fred into the passage.

There was, fortunately, no further obstruction, and at the outer exit even the great rock door was toppled from its balance, never more to respond to the bidding of its master. The doctor again stopped and looked regretfully at the massive stone.

"The broken key, the ruined safe, robbed of quietness and pleasure, what is there now to live for?" said the doctor.

Another tremor of the mountain, and a hot puff of sulphur smoke came from the passage they had left, and they all made greater haste down the canyon; and while the doctor was brooding over the catastrophe to his valley Fred felt a new sense of freedom as he sped along, helping and half supporting Alfaretta in her flight. When fully two miles away they felt it safe to rest, and sat or reclined upon the brown earth as fancy or their condition of fatigue dictated.

Alfaretta here, after regaining her composure, said, with much feeling, "Fred Anderson, how grateful we should all feel toward you! But for your timely action I really believe every one of us would have been swallowed in that terrible pit."

"Let us say it was providential," modestly replied Fred. "As I think of my action it seems to me I was but an instrument to accomplish a desired end."

"Aye," said Dr. Hayden, "'Behind the dim unknown standeth God within the shadow, keeping watch above his own.'"

Again they were admonished to proceed, by other tremors of the mountain; and after a long and tiresome walk they arrived at the Indian rancheria. To the doctor's astonishment the Indians had been so exercised by the earthquake that they fled to the valleys further west, and near the coast.

It was near evening, and the party made themselves as comfortable as the circumstances would permit. Each person had brought a blanket, and, with a roaring fire in the large round house of the rancheria, each one felt safe for the night. Alamantapola and her companion found food enough cooked near the rancheria; and, though the food consisted of dried grasshoppers, these, when cooked properly with a little flour, made an appetizing meal.

During the night there were continued tremors of the earth, and sleep was not enjoyed in that camp that night, and all faces wore traces of anxiety.

Early the next morning preparations were made for a long weary walk to Covelo. The two Indian women would not leave their rancheria. When urged by Alfaretta to go with her, Alamantapola replied, "Um Indian return by'm-by. Me no 'fraid. White squaw go to her people. Me stay with my people, um goodby." Then the two women squatted stoically on the ground, as was their custom, and they crooned a song of farewell.

"It shall be," said the doctor; "and while we wait here, Fred may ride back to the rancheria, where perhaps he can find a saddle."

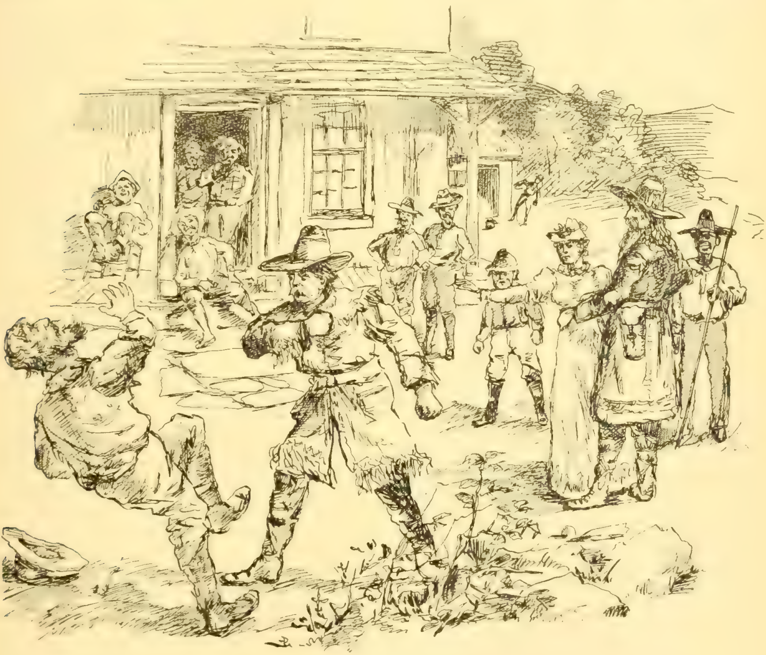
As Fred disappeared, Alfaretta, addressing the doctor, said, "But, doctor, do you own the pony?"

"No, my dear, I do not; but is it possible, Alfaretta, that you never remember riding that pony?"

"I certainly do not, doctor."

"That," said the doctor, "is your own pony, and the one Fred has told you about so many times."

"Oh dear, dear!" said Alfaretta, leaning her head upon her hands; "this is all so strange. I wonder if I shall know my own people."



"TAKE THAT, YOU LOW-LIVED MISCREANT!"

The little party, now reduced in numbers, had proceeded but a mile when they saw a couple of riderless ponies coming in the distance. When they approached, one of them proved to be Alfaretta's pony Jack.

"Up to his old tricks," said Fred; "has taken French leave of the Indians, and made for home, and how opportune!"

Fred and the doctor looked anxiously toward Alfaretta, and she, her face lighting up with a smile, said, "What a pretty pony! I do wish it were mine."

For half an hour they conversed about her past insanity, and the great change that had been wrought for her in the beautiful valley; and while she was now sane, the valley itself had gone crazy.

Fred soon returned, having found the saddle; and with the two ponies Alfaretta and the doctor were provided with easier transportation.

When the little party entered Covelo, Alfaretta was recognized as the lost young lady.

The man Slim Jim would never forget the girl who gave him the lashing with her riding-whip. Dr. Hayden was also recognized as the mysterious man of the mountain. The people were not so terror-stricken by the earthquake but they could give attention and create quite a commotion around the doctor and his companions. Pete Armstrong, who had hunted the doctor with guns, and had once shot at him, was anxiously looked for by the crowd.

Slim Jim evidently had no good feeling toward the party, and, remembering the episode in which Alfaretta had struck him over the head with her whip, his questions and his conduct toward her were so covertly insulting that Fred, though indignant, kept his temper, and in a gentle tone of voice reminded Jim that it was the part of a gentleman to treat a lady with respect.

This excellent advice increased his ire, and he now turned a good share of his abuse upon Fred. The latter was pleased that he had drawn at least a portion of the abuse from Alfaretta. The continued abuse, however, so wrought upon Fred's sensitive nature that at length, forgetting to curb his spirit as he should, and forgetting that he endangered the welfare of the rest of the party, like a knight defending a fair maiden he slapped Slim Jim on the mouth.

"Take that, you low-lived miscreant, and that," as he followed it with another.

The crowd fell back, shouting, "A fight! a fight!" "Make a ring!" "Come, Jim, will you take that?"

"No, I won't take it," said Jim, livid with rage. "But I'm no fist fighter. I want deadly weapons. I say I want deadly weapons. Now, young man, ef you have any sand in yer dandy body, jest walk right out with yer deadly weapons; and the quicker ye decide, the better."

At this juncture Pete Armstrong rode up, and, dismounting, made his way into the crowd. It was not necessary for him to ask about the excitement, for several voices shouted, "The mystery man of the mountains."

Pete Armstrong was a noble type of the young American, and Fred and the doctor felt instinctively that they would have fair treatment at his hands, while the crowd was so vicious and unreasonable as to refuse to listen to the explanations the various members of the party had essayed to present.

Young Armstrong gathered the party under the saloon-awning, and said:

"Gentlemen, I believe in the great American idea of fair play; and while I would have shot this mystery man had I met him in the mountains, it is no more than fair that, as he is in town, and has in his party the young lady and boy alive and well, whom we thought dead, I propose to listen to each person's story; and if their explanations are founded on reason, I am willing to let those who are innocent go their way, and the guilty receive the punishment due them."

"But, Pete," said Slim Jim, "this young dandy slapped me in the face, and I have challenged him to meet me with deadly weapons, and I don't want to be interrupted in this thing by your personal matters."

"Ha, ha! personal matters!" said Pete. "Well, then, young man, what do you say? Are you willing to meet this aggrieved man with deadly weapons?"

"I certainly am," said Fred. "And as I am the challenged party I have the right to choose the weapons. We can settle this matter in a few minutes."

"All right, boys," said Pete. "We'll let the fun go on, and attend to serious matters afterward."

Seconds were duly chosen, and, though the doctor mildly persuaded, and Alfaretta urged, even with tears, to prevent the disgraceful scene, Fred was determined; and, though a very conscientious and moral young man, he seemed just happy at the prospective danger before him. Pete Armstrong, seeing that both were determined, told Fred to choose his deadly weapon, time, and place.

"Well, then," said Fred, "I propose that a circle eight feet in diameter be marked off upon the ground. Each party to the duel shall take his stand inside said circle, bareheaded, and his body stripped to the waist. Each party shall be provided with a peck basket, with a cloth cover. Inside said basket must be at least two quarts of live honey-bees. Each party, while keeping within the eight-foot circle, shall throw honey-bees into the hair and upon the naked body of his opponent, until one or both are stung to death, or until one cries 'Hold, enough!'"

A SHORT time ago a question was asked in the Question-box department of the *American Bee Journal*, whether it was advisable to use deep-cell-wall foundation in sections. A few answered no. It is very evident that some had never seen it, or at least had the impression that the new foundation was clumsy, and not the beautiful delicate article it is. Mr. McEvoy, one of the respondents, not having seen the new foundation, answered in the negative; but later on he saw a sample, and frankly acknowledged to Mr. Holtermann that, if he had seen it at the time he made the answer, he would have replied in the affirmative. This, I judge, would have been the case with the others who answered no.

By
ER
ROOT
Editorial

The next convention of the United States Bee-keepers' Union will be held on Tuesday, Wednesday, and Thursday, Aug. 24, 25, 26, 1897, in Buffalo. These dates occur during the regular meeting of the G. A. R., and of course railroad rates will be low.

After the foregoing was in type the following from Dr. Mason came to hand:

> Railroad rates have been secured by the G. A. R., of two cents a mile for the round trip, that is, one cent a mile each way, in all territory east of the Mississippi river, including Canada; and in all territory west of the Mississippi the rate will be one fare for the round trip, tickets to be good going on the 21st to 24th inclusive, in all territory. Tickets must be bought for the G. A. R. encampment, and not for the U. S. B. K. U., and will be good for thirty days if vised at Buffalo, information in regard to which will be given to those attending the convention. Information in regard to hall and hotel rates will be given as soon as obtained.
>
> To those living west of the Mississippi, I would suggest, although it may not be necessary, that it may be cheaper to buy tickets to the east side of the river at the regular rate. A. B. MASON, Sec.

PROSPECTS FOR HONEY-FLOW.

IN our locality at least, basswoods will yield no honey, for the reason that not a single blossom can be found upon any of the trees in the streets of Medina, nor on those in the forest. Examination of the buds at our basswood orchard shows a like condition. I do not know how far this condition may prevail throughout the country.

The heavy rains in the early part of the season have given clover a great stimulus, and reports everywhere show that it is growing profusely. If these cool nights will only give way to warm ones, we shall expect at least a good flow of honey from clover. Taking it all in all, the late spring and early summer have been decidedly cooler than for several years. It is generally supposed that warm nights and hot days are favorable to a honey-flow; but judging by the way the orders are pouring in from every quarter of the country, making it necessary for us to run day and night, it would look as if honey were coming in, even if the conditions were not exactly favorable so far as temperature is concerned.

A MILLION-DOLLAR COMMISSION FIRM.

IT is not often that I mention editorially the name of a new commission house; but lately we have received application for space in our Honey Column, from Francis H. Leggett & Co., Franklin and Varick Sts., New York. Referring to the commercial agencies, Dun and Bradstreet, we find that their rating is of the very highest that either could give. We are very careful whom we admit into this column, and accordingly wrote to the firm in question, saying that it was our custom to allow space in our Honey Column to reputable and responsible commission firms, free of charge, on condition that they neither handle adulterated goods in the way of honey, nor encourage the sale of it if they know it. In reply I received the following letter, which I take pleasure in submitting to our readers:

> *Editor Gleanings:*—In reply to yours of the 1st inst. we would say that, in regard to handling adulterated honey, that is not our intention, and we certainly will work with you on this line. Any information in regard to producers, etc., will be cheerfully received.
>
> Trusting that our relations will be of a pleasant nature, and hoping to see our ad. in your next issue, we remain
>
> Very respectfully,
> FRANCIS H. LEGGETT & CO.
>
> New York, N. Y., June 3, 1897.

This firm, with its capital of a million and over, we feel sure, will be a great acquisition to our Honey Column; and although we have received numerous applications for space in this department, many of which have been rejected on various grounds, we take pleasure in giving these people space, even though they are strangers; and if they do not give their customers satisfaction we shall drop them out.

HONEY ADULTERATION; CANE SYRUP AND GLUCOSE.

WHEN an analysis of honey shows only 10 per cent of cane sugar as an adulterant, and no glucose, it does not necessarily signify adulteration. I believe the United States chemist stated, some time ago, that very small percentages of cane sugar found in honey could not be taken as positive evidence of fraud. If I am correct, nectar, just as it comes from the flowers, is chemically, to a great extent, a cane sugar; but after it has passed through the ripening process it is converted into what we call honey. Sometimes, when the honey is gathered and stored rapidly, it is not as thoroughly ripened at some times as at others. The consequence is, analysis shows a trace of cane sugar.

Perhaps our readers may think that, even if this is true, it would not be wise to give publicity to it, for the reason that dishonest persons would think they could add at least 10 per cent of cane sugar to their honey, and not be detected. No fear need be apprehended along this line, for the reason that good qualities of honey are sold so near the price of cane syrup it would not pay to put in so small an amount. But then it may be argued that it might pay to put at least 10 per cent in *dark* honey; but here, again, the price is as low as or lower than the syrup. If adulteration were practiced at all it would be syrup adulterated with honey, rather than honey adulterated with syrup.

But you may ask what specially called forth this editorial. A short time ago an innocent party was accused of adulterating, because the chemist found 10 per cent of cane sugar in his honey. I wrote to the party in question, giving the position of the United States chemist, and added that it was my opinion his honey wasn't adulterated; that, if he were bad enough to go into any such fraud, he would not stop at 10 per cent, but would put in enough to pay him for doing it, and that would be 50 or at least 33 per cent.

On the other hand, when analysis shows a very small percentage of glucose, it is pretty certain that some one put it there. Glucose is very easily detected by the chemist, and it is no difficult matter to determine even the very exact per cent of it. The adulterant (glucose) by reason of its very low price, and the fact that it is almost devoid of any color, is what we have to fear. It pays, from a financial standpoint, to mix honey and glucose, provided the mixture can be palmed off as pure honey. But our food commissioners in our various States are becoming more and more alert; and with good laws back of them in every State in the Union, the chemists would enable them to hunt down the guilty parties and make them pay the penalty of the law. The United States Bee-keepers' Union will undoubtedly work to secure the enactment of pure-food laws in States where they have none. There is no question but this is the proper way to handle the glucose problem.

HIVING SWARMS AT THE HOME OF THE HONEY-BEES.

Swarms are beginning to come forth, and it sometimes happens that several of us have to take a hand in hiving them. The bees seem to take special delight in coming forth exactly at the noon hour, when we would like to have a little quiet, for we are, and have been for some time, running night and day.

On Friday, June 4, as I was standing in front of the basswoods near my house, talking with A. I. R., some one called out, "Swarm of bees!" They were just emerging from between the tall evergreens surrounding the apiary; and the way they were piling through led me to believe they meant to "light out" for parts unknown. I grabbed up a pail of water and a spray-pump, and started after them. As I sprayed, the little fugitives did not drive back like a flock of sheep, as they ought to, or as I have made other swarms do on many former occasions. They seemed to be driving right through my artificial storm. I followed them, nevertheless, slopping the water on myself, but keeping up a continual spray among the thickest* part of the swarm. Mr. Weed, the foundation man, seeing my predicament, rushed to my assistance; and A. I. R. called on two of the gardeners to bring me buckets of water as fast as I used them up. Still the bees kept moving northward over the berry-patches, and over the raspberry-bushes, seeming to take special delight in gliding over objects that were serious obstructions to us poor mortals who had to climb through the bushes. Pailful after pailful of water was used up, and the bees were nearing the railroad track, and immediately over a pile of tile. I then got clear around on the outskirts of the bees, and wet down thoroughly the outposts, as it were, and finally succeeded in holding them at bay. As I was getting tired with the continual squirting, Mr. Weed took up the pump and went at it like a regular steam-engine. He set such a hot pace for himself that he was soon "outwinded," to use a little bicycle parlance. But he managed to hold them where I stopped them.

The bees hitherto seemed fairly wild to get away, and it looked at one time as if they would accomplish their object. Spectators here and there were eagerly watching to see which side would come out ahead, while the spray-pump was forcing water out among the bees. After getting them pretty well wet down they alighted on the tile, in the grass, in the road, all over every thing, and finally, to our delight, they began to form a cluster on one of the raspberry-bushes. Mr. Weed and I, in our eager haste, had sprayed almost as much water on each other as on the bees; for as soon as we drove back one set of outposts, another set would start in another direction "to make a break," and immediately the spray was turned in that direction, and it did not make any difference whether any one was in the way or not —he had to take his dousing with the bees.

To-day, June 10, another swarm came forth, and was starting off in a like manner; but this time I managed to get the spray on the very outskirts of the flying bees. I got them started back in the opposite direction, and with very little trouble forced them to cluster on the evergreens, and then of course we had things our own way.

I know of nothing that will ordinarily change the course of a flying swarm of bees so effectually as a spray-pump. As I have often described in these columns, I have generally been able to drive swarms like a flock of sheep in almost any direction I chose. I remember once a swarm was making off. I ran ahead of it, sprayed the leaders, changed the direction of their flight, and then chased them toward a certain tree; and, having arrived there, I held them until they chose to alight.

I never had a case before, I believe, where we came so near losing a swarm in spite of the spray-pump as the one I described at the outset, for it is very rare that we are not able to make them cluster very quickly.

We keep a pail of water, a spray-pump, a Manum swarmer, and a long pole, in the center of the apiary. As soon as a swarm comes out, we make for these implements of swarming; and if the bees act as if they were going to run away and leave us, then we douse them until they are glad to alight.

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* Here I made the mistake. I should have sprayed the bees in the lead.

OUR HOMES.

Shall we receive good at the hand of God, and shall we not receive evil? JOB 2:10.

In my last I told you that I was greatly disappointed to find that the outcome, after all of our pains, and success after our mishaps, was that the well should give us only *hard* water. I went up at different times and tried it, but it was of no use. The water was not like that from our other two soft-water wells. Very reluctantly I was obliged to let the men take down their tools and pack them up. Mr. H. said he would gladly do the work for me, but he did not believe we should succeed by going any deeper, and so the matter was dropped.

For a good many days I felt sad and discouraged whenever I looked up to the top of the hill at the windmill and tank. Yes, whenever I took hold of a piece of soap to wash my hands, and commenced to make suds, before I realized what it was I would get to wondering what queer and unpleasant cloud had come over my spirits all at once, or had given me a twinge, as it were. Why, the sight of the soap and water suggested the expensive failure of my last operation of drilling for water. Something over a hundred dollars had been paid out, and we were no better off than when we started. I thought of what I had been saying about saving money for the sufferers in India; and then I thought of those several singular and apparently direct answers to prayer, and I could not understand why this should be the outcome of it all. In fact, I had been thinking of writing up this very thing as an illustration of how God directs and helps those who put their trust in him. But what point would there be in it if the final outcome were just nothing at all but a waste of money? I kept pondering the matter; in fact, I am afraid I sometimes let my thoughts get to planning in regard to that well when I ought to have been listening to a good sermon on God's holy day.

Finally some one said to me that the foundry near by secured soft water by going down *deeper* than we had drilled, and I had the well-drillers put their tools back in place again, and tried going deeper. We pulled out our tubing, drilled the hole larger, and tubed off again to a point low enough to cut off the heavy vein of bad water. We succeeded nicely in this, and soon had a well absolutely free from water, down over a hundred feet.

"Now," said I, "when we get water again it will be soft."

"But, Mr. Root, I am afraid we may not *get* a good vein of water again," said Mr. H.

But I was very sanguine, and kept watching hopefully. We got down 120, 125 feet, yet no water. At about 127 feet I noticed a queer smile on the driller's face as he remarked:

"Mr. Root, we have not got any water yet of any account, but we have some *gas*. How will that suit you?"

Let me explain right here, that, when the gas and oil excitement first broke out, nearly forty years ago, I became greatly taken up with the idea of these new wonderful gifts that God was giving as a reward for drilling away down deep into the earth, and I very soon had a well of my own where I was drilling for gas or oil. During all these years, as you may know, I have been watching with new interest all developments in this line; but never before had I discovered or been the fortunate possessor of natural gas on my own premises. All at once the truth seemed to break in upon me. The great Father, in his providence, had been planning to give me this new "happy surprise;" and then I thought what a grand thing it would be to write up the whole matter for Our Homes. Now, I meant to do this truthfully and honestly. I meant to write under God's all-seeing eye, and to please *him* and not to please mankind. Said I:

"Mr. H., how do you know it is gas? May be it is only a pocket of air, such as we found before we struck the rock."

"Oh! I know it is gas well enough this time," replied Mr. H.

With trembling hands I got some matches and prepared to throw a lighted one down into the iron tube.

"Look out there, my friend! You may get more than you bargain for," said Mr. H.

"Oh! I know how to manage these things. *I* won't get hurt."

But he cautioned me again. I then dropped the blazing match into the tube, and dodged back; and it was well I did. An explosion followed, and a sheet of flame shot up several feet high, and singed my whiskers just a little. We put in a plug, and the gas burned several inches high out of the top of the small iron pipe. But my friend said there was not enough gas to be of any practical use. He thought that, by going deeper, we might get more. Before we started drilling again, however, his quick ear detected a faint bubbling sound in the well.

"There," said he, "we have struck water along with the gas, and it will probably soon rise up high enough to stop the flow of gas."

It did so to a partial extent. We decided to keep on drilling, however, and went down to 155 feet. All this time I was, of course, building my hopes away up, and planning what I should do with the gas, both at home and in the factory. Finally we struck a considerable vein of water; but it was *salt* water, and not soft. Salt water would be of no use to anybody unless I wanted to start a saltworks, and that, of course, would be clear out of my line. This salt water was of no use—not even for irrigating. Once more, and with a still sadder heart, the tools were taken up and the derrick moved away. I felt I had no right to invest more money in such a scheme, when calls were coming on all sides for help—help not only for needy ones, but for those who were actually starving.

As we did not find the soft water, and as the gas did not amount to any thing, of course there was nothing to be gained by writing the matter up for the Home Papers—at least, so it seemed to me for a time. I studied over the matter, and prayed over it, and now I feel at least comparatively reconciled to my failure with the well; and I feel sure, also, that God was teaching me an important lesson by the failure, that he could not have taught me had he given me success.

And now you see the point of our text, dear friends. Job said to his wife, when she gave him evil counsel, "What! shall we receive good from the hand of God, and shall we not receive evil?" Perhaps our readers had better look up that second chapter of Job. When all his success in life was suddenly changed to disaster and trouble, his wife lost faith and advised him to "curse God, and die." He rebuked her, and called her a foolish woman, and then he gave us the words of our text.

Let us stop a minute and consider what the result would be if God were to grant every request made to him in prayer. In my talk to you in our last issue I used the text, "Whatsoever ye shall ask in my name, that will I do." This very text has stumbled and puzzled a good many, but it need not do so.

We should have to be more than human if we could so banish self and selfishness from our hearts that all our petitions would be asked in his name—that is, if our requests were to be consistent as coming from one who loves righteousness *more* than self. When we can do this, then God can safely answer our prayers. I was working and praying over that well with the thought in mind that the soft water would be a benefit to our town and to humanity; but I think that really my own selfish plans were mostly at the bottom of it. When we struck that vein of gas, so far as I can remember, my plans for utilizing it were all selfish ones—that is, the very plans I was so busy going over, and perhaps to some extent on God's holy day, and in his place of worship. It does seem a little singular that things favored us in such unexpected ways in getting it started; but we can not expect to fathom God's plans and purposes; and perhaps this very Home Paper may do as much good as I have given it, honestly and truthfully, as any I have ever written. My experience, in fact, just now calls to mind that of a devoted Christian, an old friend of mine, several years ago. He was greatly given to new projects—to starting out in some new kind of business. Soon after the war, when rents were high, and people could buy lots and build houses on them, and sell out at a large profit, he got a scheme into his head of buying lots and making nice little homes for laboring people. He was sure he could plan something attractive and convenient, and something that would sell. In fact, he could think of nothing else, and prayed again and again that God in his providence would induce some good friend to place the means at his disposal. Just about this time a relative told him he had several thousand dollars lying idle, and that he could have it at a low rate of interest—perhaps at no interest at all—I can not quite remember now. This friend saw in it at once a wonderful answer to prayer. He took the money, thanked God for it again and again, and built his houses; but, unfortunately, there was a reverse, and a great decline in real estate and rents; and the outcome of it all was, that, in borrowing this money, he got himself into the worst trouble of his life. He came near losing his faith in God and in prayer. When he stated the case to me I told him at once where, as I thought, he had been making a mistake. Our prayers should all be prefaced and closed with the words of our dear Lord and Savior—"Nevertheless, not my will, but thine, be done."

I have sometimes thought that perhaps God answers our prayers in order that, by so doing, he may teach us wholesome lessons. Many of you have doubtless heard of the woman who prayed that her boy's life might be spared when he was very sick. She finally asked God to spare him under *any* condition—even to take her life if need be, but to spare the boy. He lived, and she lived to see him die on the gallows. This may be true or it may not be true; but I think it points a wholesome moral to us all. The human will should never be set up against God's; and if our faith is of a kind that causes us to doubt God because he does not give us just what we ask for, or because we can not exactly understand his reasons, then it is a very poor kind of faith indeed. Let us hold on as Job did; and let us also hold fast to our faith as did the patriarch of Uz when he said, as he rose sublimely above the narrow range of all things pertaining to this world, "Though he *slay* me, *yet* will I *trust* in him."

Still at thy mercy-seat, seat, Savior, I fall;
Trusting thy promise sweet, heard is my call;
Faith wings my prayer to thee; this all my song shall be,
Jesus has died for me, Jesus my all.

NOTES OF TRAVEL

—BY A. I. ROOT.—

THE STRAWBERRY INDUSTRY AT BARNESVILLE, OHIO.

For several years I have been thinking I should like to visit Barnesville, and see how they manage where they grow strawberries by the carload and trainload, and also see what varieties, where they plant whole *farms* to strawberries. Well, last Saturday evening I received the card below:

> *Dear Friend Root:*—The strawberries are ripening now, rather late. I think the first of next week would be a good time to visit the patches. I shall be pleased to show thee around. **WM. L. ASHTON.**
> Barnesville, O., June 4.

With the rush of business now upon us, it was hard for me to be away for even one day, and I could not afford to waste any time by waiting for trains. So I looked up the state of things on the new wheel-book sent out by the L. A. W., and found that our Medina railway strikes a station in Belmont Co. called Bannock, where a limestone pike goes down to the old national pike; and by making a wheelride of toward 20 miles over these stone pikes I found I could reach Barnesville without any waiting. I will not stop to tell you about my wheelride, but only say that I met with about the usual number of adventures. In fact, I am bearing the scars of some of them while I write.

I was warmly welcomed by our Quaker friend and his boys, for he proved to be the superintendent of the Quaker school, a mile out from Barnesville. Near by was one of the strawberry-fields; and my first introduction to the strawberry-grower brought back a host of memories belonging to forty years ago or more. Shall I tell you why? Well, it was because the introduction was something like this:

"Brother Smith, this is Amos Root. Brother Root, I make thee acquainted with Solomon Smith."

"Amos Root!" Away back in my boyhood, when I was so bashful that I wanted to slip around out of sight rather than meet strangers, they used to call me "Amos Root;" and somehow or other it did my heart good to be called by that old familiar name. It seemed to say to me, "You are at home, and among friends—yes, *friends* indeed;" and it seemed to strip off business and business cares. Just the very words made me feel that I was a boy again—a quiet, backward, awkward boy; and it made me feel, for just a little time, loose from all business entanglements and complications. I do not know but I drew a long breath of relief. "A. I. Root" does not sound boyish; neither does "The A. I. Root Co." And, oh I do so *love* to be a boy once more when I get away off with my wheel!

My first glimpse was of a patch of berries on a southern slope; and, by the way, there *are* slopes and nothing but "slopes" around Barnesville — every thing slopes — garden-patches, whole farms; but, notwithstanding, I believe Belmont Co. is the most thrifty and the finest-looking agricultural county I ever saw anywhere in all my travels. Every bit of ground is covered with something green at this time of the year. No matter how steep the hillsides, nor how high their summits, something is growing. The forests have been mostly cleared away, and cultivated fields--that is, fields over the hilltops and down in the valleys—take their places.

The strawberries are grown in matted rows, just about according to Terry's directions. The ground was well mulched with straw in the fall, and there has been no cultivation since, except to pull the weeds; and just now they do not even do that very much, because the weed brings up a lot of dirt, and that is pretty sure to make the berries gritty.

The first row I struck was our old friend Warfield, that I have just been talking about; but the Warfield berries were larger than we have ever grown them here in Medina Co. This is owing to having the plants not too thick in the rows, to the rich gravelly loam on the hills, and to the great amount of stable manure or other fertilizer used. Almost every grower I visited, however, threatens to stop putting stable manure on strawberries, on account of the weed seeds. Some are using phosphates; but the greater number, I think, are using bone dust and ashes, or some other preparation of potash, in place of stable manure.

I felt anxious to know how many of the varities we have been advising and recommending were flourishing there; and my good friend Ashton smiled when Bro. Smith told us that one of their best berries was the Warfield. Now, they have around Barnesville the very berries we have settled down on, and but only a few other kinds. The Jessie has been partially dropped, although a few growers still stick to it; and the same with the Parker Earle. Michel's Early they grow for extra early, but for no other reason. Bubach takes the lead for a large strawberry. Where Bubachs are grown with the plants far enough apart, so as to have plenty of room, they select choice specimens for fancy city trade. Such berries bring from 25 to 40 cts. a quart. Where you can get, say, ten berries that will fill a quart basket, it is not much trouble to find a purchaser for them, among traveling people on the railways, at from 30 to 40 cts.

Since my visit I think more of the Bubach than ever before. The Edgar Queen, I believe, is not grown around Barnesville, and it is the only one we catalog that has not found a place there. Brandywine is just beginning to attract considerable attention. It does not bear as many berries as the Bubach, perhaps, but they are so firm they can be handled and shipped almost like potatoes, even when they are well colored all over. This is certainly a wonderful thing in its favor. The Marshall has been grown to some extent, but I believe it does not produce berries enough for field culture, as a general thing.

One of the largest berry-farms in the neighborhood of Barnesville is managed by the Cowan brothers, one of them having over 100 acres devoted to small fruits, and, if I am correct, something like 40 acres entirely in strawberries. We were a little surprised to find the proprietor a colored man; and it was a surprise indeed to see how he was making berries grow on every foot of the land, hilltop and valley. Even in the ravine back of his house, where it was about as steep as the roof of a house, great rank luxuriant strawberries were growing and bearing there. Mr. Cowan says the *side* of the hill is much better for strawberries than the extreme *top*. He thinks this is much owing to the cold winds that strike the summit, while the berries part way down, especially where the hill slopes to the southeast, are protected from the cold northwest winds. It was indeed amusing to see the great clusters hanging over and spread out on the straw mulching on the down-hill side of each row. The Haverland, you know, is remarkable for its long stems, and these were literally piled up in heaps. The day before our visit, they had picked and shipped 50 bushels.

Mr. Cowan objects, like the rest, to stable manure for a mulch, especially that which comes from the livery-stables in town. I do not know just why manure from livery-stables should contain so many weed seeds, but perhaps it is because they have to purchase large quantities of hay from all sorts of farmers. A man who has a horse and cow of his own, or who grows the feed for his stock, would not be so likely to risk taking weeds on to his premises. Several men told me they had got their ground filled with kinds of weeds they had never seen on their premises until they brought them in by purchasing stable manure for their berries. Now, this is indeed a serious matter. Another source of weed seeds is the straw mulching put under the berries to keep them clean. The small quantity of grain left in the straw makes trouble, but the trouble is not as bad as with pernicious weeds. The prickly lettuce is one of the worst, because it will mature seed, and send it flying about even while the berries are fruiting.

Permit me to mention here that Mr. Cowan was using very successfully over a part of one of his fields the refuse from a cane-mill near by. It answers the purpose perfectly, contains no weed seeds whatever, and he said the only objection in his case was the distance they were obliged to go for it. In their work they use two tons of straw per acre, or its equivalent in something else. This, of course, is for mulching, to protect the plants from heaving out in the winter, and to keep the berries out of the dirt in fruiting-time.

The berries grown on this piece of 40 acres are mostly those I have mentioned. Warfield, Haverland, and Bubach are sure to be found; then Parker Earle, Jessie, and Michel's Early are grown more or less.

I asked Mr. Cowan how often he shipped berries that sold so low as to pay for only the packages, express charges, and cost of picking. He said he had never come out quite as badly as that, even on a single bushel, although he had heard of others who had to advance money, besides the value of the berries, to pay the expense of shipping and marketing. I was somewhat surprised at this; but when I became better acquainted with the man I found that he was unusually bright and wideawake. He is a hard worker himself, and he keeps right along with his help, which, if am correct, is mostly colored people.

There is a factory at Barnesville for making crates and boxes for berry-growers; and they have certainly got the prices down very low. The cheap gift crates to hold one bushel, or 32 one-quart boxes, are furnished at Barnesville, nailed up, for only 12½ cts.; and as the nailed-up quart boxes are sold for $3.50 per 1000, the whole expense of a package for a bushel of berries is only about 23 cts.

The raspberries and blackberries were wonderfully luxuriant over those gravelly hills. It reminded me of my visit to Prof. Grannis, a year or two ago. When I asked how they got along with this matter of wash and gullying on the hillsides when under cultivation, friend Cowan explained that they made their rows of berries around the hill, something on the plan described at the last end of our tomato-book; then when the water gets through, and commences to cut a gully, they stop it by tramping in the trimmings of the berry-bushes. These are tramped down in place, and then held there by refuse stones until the ground settles around them so that vegetation gets sufficient hold.

Our colored friend keeps up with the times, subscribes to the periodicals devoted to growing small fruits, and is a live man in every sense of the word. As we prepared to take our leave he informed me that, when he started in the berry business some years ago, he had only about $200 or $300 to make a payment on the farm. The place was already pretty heavily mortgaged. It was only a short time ago that the last dollar of the mortgage was paid; and now he can breathe a little easier while he plans to make every yard of ground produce fruit of some kind. Besides the strawberries he has considerable ground devoted to currants and gooseberries, and these have always paid him well. Instead of paying large sums of money to nurserymen for plants, he grows his own, makes cuttings from the currants and gooseberries, and has a very pretty little nursery where they are cultivated and cared for until they are ready to go out into the field. As we prepared to go, I said:

"Mr. Cowan, this visit has been specially interesting to me because it is so unusual to see one of your race doing business and owning property as you are. I am sure the example you set before your people must be worth a good deal. You are not only succeeding in business, but you are doing missionary work among your people."

"Mr. Root, I know what my people are, the greater part of them. There are men who come here and pick berries, and I have seen them work until they had earned perhaps twelve or fifteen dollars, and then I have seen these same men go and *waste* this money, or *worse* than waste it, in *two or three hours' time.* The saddest part of it is, they seem to feel no compunctions of conscience or regret, but start in to work, and do the same thing over again."

While my friend was talking I could not help feeling sad to reflect that it was not only the *colored* people who "spend money for that which is not bread, and labor for that which satisfieth not."

When I got out on the national pike I called on two more strawberry-growers. One of them told me how he had been growing berries a great many years, but had just made a discovery—in fact, had just got his eyes open so as to know how to grow berries profitably. He took me down a side hill to show me his new invention—another patch of Bubachs fertilized with our old friend Sharpless; and, oh such berries! not only in size, but in luscious sweetness; and I actually believe I would rather have the Sharpless berry for my own eating than any other berry grown. But, let us get to the new invention.

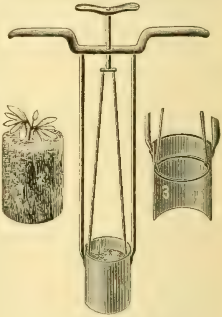
The plants were all put out last fall; and neither the Sharpless nor the Bubach had produced a very thick matted row. In fact, in some places there were not enough plants; but they had had good care, and each plant had an abundance of room so that it was growing great whoppers, even if there were not so many of them. This man sells the greater part of his crop by sorting out the largest ones and selling them at fancy prices. It is almost like growing berries in hills. The runners are kept off, or mostly off, as soon as a sufficient stand is secured for large berries. He does not get as many bushels per acre, but he gets better prices for what he does grow. A neighbor near him was managing a plantation a good deal the same way, but he was using the Brandywine. Here again we had great berries that could be tumbled about like potatoes, while the Bubachs in the same patch would be, many of them, too soft to handle before they were fully ripe. But I am afraid the Brandywine is not going to give us as many berries as the Bubach. The latter stands to-day, if I am correct, at the head of the list for *large* berries, and a *lot* of them. Some of the new varieties may get ahead of it; but introducers have been working hard for a good many years, and the Bubach seems to hold its own year after year.

HIGH PRESSURE GARDENING

A NEW TRANSPLANTING-MACHINE; ALSO SOMETHING ABOUT BASSWOOD-SEEDLINGS.

Something like two years ago a transplanting-machine was sent to Matthew Crawford, but for some reason or other he forwarded it on to me, asking me to test and report. On account of many cares, and other things to be looked after and tested, the little machine was laid under my desk until well along into the season before I took the trouble to take it out and try it. Another thing, I have tested so many machines that did not seem to be as convenient as some we already had in use, I was a little skeptical about it; but when I did get hold of it I was agreeably surprised to find that I could in a twinkling move any small plant to another location so quickly and so safely that it seemed almost as if it must be some sleight-of-hand performance.

The drawing will make the machine plain, almost without any particular explanation. You hold the machine in both hands, and with an auger-like motion back and forth you set the steel tube, No. 1, over the plant. It is pressed down till it will bring up the plant, roots and all, in a lump of dirt like No. 2. It is not advisable to push it any further down than is necessary to get all the roots. In fact, if the tap-root is broken off, with most plants they will do just as well.



A NEW MACHINE FOR TRANSPLANTING SMALL PLANTS.

After the plant is out of the ground in its ball of earth, you place your two thumbs on the lever at the top of the machine, and push down, releasing the ball of earth. With strawberries you can load these balls into a wheelbarrow, or with appropriate trays you can load them into a wagon. Fit your ground nicely, as described in our book on strawberry culture; mark it out according to your notion, then with the transplanting-machine make holes to drop your "potted plants" into, for they *are* potted plants, to all intents and purposes.

Some time in the fore part of April we put out with this machine several thousand strawberry-plants, including all the different varieties; and if there is *one failure* in the whole lot, I have not seen it. Almost any boy, with a little instruction, will operate it nicely; and with any soil that I have yet used it on, the dirt, if wet enough, will hold around the plant so it can be handled. The nicest way, in my opinion, is to grow your plants in a plant-bed made up of exceedingly rich compost; then you carry enough of this compost out to the field to give your plants a big start, even if the ground is comparatively poor. We have not yet tried shipping plants by express, taken up in this way; but by breaking off a part of the ball of earth, so as to decrease the weight as much as possible, and yet have enough left to keep the roots perfectly, then packing these balls of earth with sphagnum moss, I think valuable plants could be sent this way with profit. The weight of the adhering soil would, of course, be a serious objection to sending any plants in this way unless it were a small number of something exceedingly valuable. Sometimes it seems desirable to swap places with certain valuable plants. With the above machine this can be done in a twinkling; and even the plants that have been transplanted do not seem to know they have been swapped. Although we have never used more than the one machine, I think it would be quite desirable to have another size a little larger; or two sizes might be found convenient. The one we use has a cylinder 3 inches in diameter and 5 inches in length. The whole thing amounts to the same thing as our transplanting-tubes; but you have no tin tubes at all to pick up and put away. The machine itself does the whole business.

Perhaps I should explain that cylinder No. 1 is made of the very best crucible steel; and while in use it is as bright as a dollar, and as smooth as a polished saw-blade.

And now we come to the unfortunate part of it. I have lost the letter from the man who sent the machine. I wrote him once, asking his permission to have an engraving made and have it published. He replied (I think it was about a year ago) that he was just about getting out an improved machine, and asked me to hold on a little. I have held on until I feel as if it would be wrong to keep people, who love gardening, any longer in ignorance in regard to this wonderful invention. It has now been tested by many competent men, and there is but one verdict in regard to it—it is away ahead of any other transplanting-arrangement of the kind that has ever been brought before the public. When our good friend gives me permission I want to make them and offer them at a reasonable price.

The little plant you see in the picture is a basswood-seedling. One day when one of our small boys was out of a job I told him to mark out one of our plant-beds with one of our markers (several times described), then pick up the basswood-seedlings all over the garden, wherever he could find them, and put them in the bed. No. 2 shows one of the basswood-seedlings just as we picked them up. In a little while he had a bed of 300 nice ones. And this reminds me that we have pretty much failed in getting basswoods to grow where we planted seeds; but wherever we are making up beds near the basswood-trees, these little seedlings come up plentifully. Under one small basswood-tree we picked out over forty plants. A friend suggests that perhaps the basswood-seeds should lie on the top of the ground, and endure the freezing and thawing through the winter; and he thinks that if, after this, we were to plant them in the spring, they would germinate successfully. Last fall, as you may remember, we planted something like a peck of seeds, but not more than a dozen plants came up out of all that quantity.

Will the friend who sent us the above machine, when this meets his eye, please let us know about it? I do not know whether it is patented or not; but the owner can, without question (in my opinion), procure a patent on it if he chooses.

FIRMING THE SOIL FOR STRAWBERRIES.

On page 691, Sept. 15, 1896, I spoke about the wonderful luxuriance of some strawberries at Matthew Crawford's. They were planted in a bed where the soil had been pounded down with a stamper, as you would pound the dirt around a post. Of course, the soil was first made fine and light, and plenty of manure was mixed with it. When I got home I had one of my plant-beds prepared in the same manner. It was spaded up very fine and soft, with plenty of manure mixed in. The ground was very rich, for plants had been grown on it for several years. After the fining-up it was pounded down as hard as the boys could stamp and pound it. It was so late in the fall that I did not see very much difference, and had rather forgotten about the matter. But it occurred to me a few days ago that each one of the four varieties on this bed was doing wonderfully. We have a new berry, the "Carrie;" another one called "Darling," and the "Earliest," the last of which I have been talking about. Each of the three is putting out runners that are just wonderful. A single strawberry-leaf will cover a teacup, and the stems stand up all of a foot high. The one called "Darling" has this morning, June 4th, the prettiest heap of fruit, ripe and partially ripe, I think I ever saw around a strawberry-plant.* I began to think all three varieties were something wonderful in the way of luxuriance; and then it occurred to me about stamping the ground. Friend Crawford's soil is somewhat sandy, and I was thinking that perhaps it would do better on such ground than on our own. Where our plant-beds have been manured heavily for several years the ground has a tendency to get light so it dries out easily. I believe this stamping will correct this trouble to a great extent. Remember, however, that all the stamping and pounding must be done when the ground is dry and fine. Mash all the lumps; have the soil soft and fine for a foot deep or more; then pound it down as hard as you choose. Of course, out in the field we would roll it with a heavy roller and some heavy horses to pull it, and also to stamp it with their big heavy feet. But you can test the matter on a small bed, to show what compacting will do.

Our bed of Nick Ohmers and Margarets is just beginning to ripen, and they are little "peaches," without question. Mrs. Root was looking at them to-day, and she asked if almost any strawberry would not do wonders in a similar manner if I were to give it such rich soil and so much petting. Of course, we must allow for this. In the open field Michel's Early are just beginning to ripen. We shall probably make our first picking to-morrow morning, June 4. I do not think there is any other variety on our grounds that shows any ripe berries in the open field. In the plant-beds, where we kept off the frost by the use of glass, we are getting Marshalls, and have been getting them for two weeks past. The Jessies are also beginning to ripen in the beds where they had a little protection. You can hurry strawberries along very much indeed by covering them during severe weather; and a covering of cloth, while it protects the blossoms from frost, will also do quite a little toward making the strawberries ripen earlier.

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* This new kind has another peculiarity that makes it wonderfully attractive. When it begins to color it is a light rose pink—almost exactly like the blush on a peach; and the strawberry, when ripe, is of a pinkish red instead of a brick red; the shape is also almost perfect, and, taking it all in all, I do not wonder that the originator named it "Darling." To be fair, however, I must tell you that, out of six plants we obtained last fall for trial, one of them has not borne a berry; four of them produced fruit fairly; and it was only the fifth that gave us these little beautiful handsome berries that made me feel like saying, "O you precious little darling of a strawberry-plant!" In point of earliness I think it will be fully as early as the Michel, and next to the one called the "Earliest."

CRIMSON CLOVER AT THIS DATE, JUNE 5.

Just before decoration day, people were stopping their teams to inquire in regard to the beautiful new plant that decked the field by the roadside; and when it came time to prepare bouquets for our national day, great crowds were begging permission to gather some of the heads. In this way it was paraded and shown and admired all over our county, and people have been coming constantly to see it. It is now a miniature sea of crimson, and it is certainly as heavy as any clover of *any* sort ever grown on our premises. In one of the agricultural papers I saw a criticism to the effect that it did not produce any such stand as the common red clover. Now, I don't think I ever saw any more clover of any kind on a piece of ground, unless it was at T. B. Terry's; and if he were to grow the crimson I do not know but he would make it come fully up to his red clover. But, dear friends, suppose the crimson clover does not give as large a stand as red clover. Please consider it is a catch crop, or a stolen crop, if you choose. The seed was sown after taking off that heavy crop of potatoes. The ground was not plowed at all—simply harrowed over hurriedly. The cost of the seed and fitting the ground was not more than $1.50 per acre (say 75 cents for seed); and nothing more has been done to it till the present time. We are letting it mature seed in order that we may have not only home-grown but northern-grown seed to offer for sale.

There is plenty of time yet to plow it under, either for corn or potatoes. If the farmer should be short of feed, there is an immense lot of it that is equal to any clover known. It occupies the ground when the latter would otherwise be barren and useless. I believe, with the *Rural New-Yorker*, that, even if it winter-kills, it furnishes enough fertility to pay all the cost of seed and putting it in. To get it in after potatoes, I presume an early variety should be selected and planted early. Where our clover now stands we planted New Queen potatoes last year the 10th of May. They were dug somewhere between the 1st and 15th of September, and the clover was sown just as fast as we could get a strip through the field wide enough to cultivate. The potato-tops were used to mulch strawberries near by. Some of them were afterward scattered evenly over the crimson clover. We managed this without very much labor by throwing the vines off to one side, and, as soon as the clover was sown, throwing the same vines back again, taking pains to spread them over the ground evenly. Most of the clover has fallen over, or partially so, in consequence of its heavy growth. The bees are, of course, making a constant roar over the whole field. Two or three swarms have come out while the clover has been in bloom; and as it comes in just after apple-blossoms are gone, it hits the needs of the bee-keeper to a dot. If the clover is saved for seed it will furnish honey all through the interval between fruit-blossoms and white clover.

A NEW PLUM—THE PRIDE OF FLORIDA.

I send you to-day by mail a sample of a new plum, Pride of Florida. I send it to you because you are a lover of fine fruit, and because I hope to advertise it in Gleanings next fall, and wish you to know that the claims I make for it are true. It is a seedling of the Kelsey plum, the earliest *shipping* plum, and a good bearer. The plums I send are from one-year-old trees, and have suffered in size from the long dry weather. Aug. Leyvraz.

Francis, Fla., May 22.

Every one of the plums reached us in perfect condition; and just as soon as I tasted one it brought back old memories of finding plum-trees in the woods in my boyhood days. I showed one to Mr. Green; and before he tasted it he said. "This is an American plum, and it will grow just as well here in Ohio as in Florida." Of course, they are not very large, but they are perfect in shape and color; and in flavor I should put them ahead of many of the very large plums. They have something of the appearance of the sloe, but are considerably larger. I presume our friend means the trees bear fruit one year after being planted from the nursery. This seems to be, however, a good deal owing to the Florida climate. We should be satisfied if we got plums in *two* years.

THE NEW STRAWBERRY "EARLIEST."

Friend Root:—I notice you mention the Earliest strawberry in your May 15th issue as showing very early blossoms. Well, Mr. E. C. Green may be right. It may be all runners and no fruit in Ohio, but here during the past season it gave a fine lot of berries that (because of its earliness) sold at 15 to 20 cents per quart, while large fine berries a little later sold down to 50, 75, and $1.00 per 32-qt. cases, and some of our growers could not sell them at all after paying picking. Our Earliest, we can say, for dollars and cents, has brought more money than any thing else, per acre. It is not the best berry, nor is it the most productive; but it is productive enough to pay well here. Don't let the plants stand too thickly. Give them a chance. It will (or does with us) do better the second year than the first. We shall be pleased to hear how it does with you, this year, any way. The Carrie has done nobly here this year. We shall just about cease picking Friday.

Rio Vista, Va., May 27. M. T. Thompson.

All together this new berry pleases us so well that we have decided to put down runners and offer plants for sale. We can, perhaps, furnish a limited number by mail, say about the first of July. Some of the plants have furnished a pretty good lot of berries. The shape is perfect; the color is perfect also, but it is rather light. In flavor it is one of the very finest of the tart berries. The plant is a rampant grower. Those set out last fall have now a mass of foliage as large as a bushel basket. As I have said before, I think it will be a very nice thing to plant to a limited extent on account of its extreme earliness. With us it has been at least two weeks, in time of ripening, ahead of Michel's Early.

THE BELMONT OR GATE APPLE.

I hope you will follow it up and see if they are surely the same. I believe the genuine Golden Gate has smoky blotches on the skin. I consider the genuine old-fashioned Golden Gate one of the best apples on earth. I have been trying to get a tree to plant in my lot, but failed. Storrs, Harrison & Co. could not furnish it. I understood it did not grow well in nursery rows, and the best way to get it is to top-graft another apple-tree. I hope you will do all you can to revive this and the Rambo. Fruits of great merit should not be allowed to die out through neglect or inattention caused by newer things *not so good*. Philo S. Dilworth.

Ingram, Pa., May 22.

A RATIONAL REMEDY FOR THE APPLE-TREE BORER.

I have protected my trees completely for 30 years from the apple-tree borer by wrapping the base of the trunk with any old cloth or carpet, or old feed-sacks, or cloth of any kind, putting them about 18 inches high, not too tight. They are held in place with strings. This does not hurt the trees, as about the second year the string bursts, and the rags, or whatever you use, by that time sticks to the bark tightly, and will last for several years if properly done. With me it has been a complete success.

Swissvale, Pa., May 10. ROBT. C. SMITH.

SWEET CLOVER IN NEW MEXICO.

Please tell Bro. A. I. that my sweet clover began blooming 10 days ago; is now 6 to 7 ft. high (one acre). I dug one plant to bring to town on the 5th inst. It measured, as it stood in field (alone), 8 ft. across and six feet high, and weighed, when dug, with root, 19¾ lbs. My cow won't eat it, but the horses are beginning to taste it occasionally.

Eddy, New Mexico, June 10. J. SINGLETON.

Sweet clover grows here in abundance, mostly white blossoms; but there is quite a good deal of the yellow blossoms. WILLIAMSON & NEWELL.

Trumansburg, N. Y., May 3.

THE WHITTAKER ONION.

I have known these Whittaker onions very well for more than 30 years, in Franklin Co., Pa.; and if these you have are the same kind I shall be pleased to use them again as an onion to be planted in the fall. C. T. REED.

Greensburg, Pa.

I sent one new subscriber, and received two Maule's Early, about equal size. I gave one to the subscriber. The other one made 18 hills, one eye to the hill; it was planted March 31, 1896, in good garden soil. I cultivated them with the hoe, and dug 27½ pounds of potatoes. MISS MARY C. SHARP.

Montreal, Mo., Apr. 19.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

VEGETABLE-PLANTS READY TO SEND OUT.

Cabbage-plants, all kinds; cauliflower; onion-plants; tomato-plants; celery-plants; pepper-plants; sweet-potato plants. No strawberry-plants until a month later, or toward the first of August.

CRIMSON CLOVER.

We have already secured the following low prices on crimson clover for the coming season: Sack, 2 bushels, $5.50; bushel, $3.00; ½ bushel, $1.60; peck, 85 cts.; 1 lb., 8 cts. If wanted by mail, add 10 cts. per lb. for postage and packing. We will send 3 lbs. by mail, postpaid, for 50 cts. From 8 to 15 lbs. of seed per acre is needed. Sow it on ground where a crop has been removed, in July or August; or sow it the last time of hoeing and cultivating among growing corn, melons, or any sort of garden stuff, where the ground is but little disturbed in harvesting the crop.

SEEDS THAT MAY BE SOWN IN THE MIDDLE OF JUNE.

First, all kinds of beans, beets (and cabbage if you have good plants), and carrots. This is just the time to sow cauliflower seed in order to have the heads form in cool weather. It is also just the time for celery if you have good plants: all kinds of sweet corn; the very best time for cucumbers; just right for lettuce if you have a market for it in the fall. But you must keep it out of the hot sun by means of cotton cloth, as I have explained. There is also time for all kinds of melons if the fall is favorable. You may sow onion seed for sets, and you may put out plants if you have them, providing the weather is favorable. Sow now all kinds of peas; peppers if you have the plants; Early Sugar pumpkin. By the way, we can furnish you regular field-pumpkin seed, just such as is used by the Lakeshore Canning Factory, for 15 cts. per lb., or 25 cts. if sent by mail postpaid. Now is also the time for tomatoes if you have plants; all kinds of turnips, if they don't get spoiled by the hot weather. This is just the time for the coffee-berry and soja beans; just the time for buckwheat, or a month later if you choose; a good time for rape, either for bees or forage; also for cow peas.

INSECTICIDES AND POWDER-BELLOWS.

The $1.00 bellows pictured in our price list answers our purpose splendidly; but if you have several acres of potatoes to go over I think I would have the Hotchkiss machine advertised in our last issue. We are using, for almost every thing, pure Paris green. Put on in the form of a dry powder it requires ever so much less labor (as you are not obliged to carry around a great quantity of water), so that we are using it for almost every thing. When gooseberries, currants, and similar fruits get to be so large that you do not want to use Paris green, use pyrethrum or hellebore. We have the best success with the pyrethrum. We use tobacco dust for melon, squash, and all other vines. Since the dust has become so cheap we just put a little heap of it right over the plants as soon as the bugs begin to be troublesome. It will not hurt the melons or squashes if you cover them all up with it; and you may be sure the most pertinacious bugs will never dig into the tobacco dust to get at the plant. See prices of all these things in our new seed catalog. If you haven't one, it will pay you to ask for one by postal card, even if you don't buy a cent's worth. The information it contains is very valuable to have at hand.

THE POTATO PREMIUMS.

After our exceedingly liberal offer in our last issue, the Thoroughbreds went off very quickly — in fact, very much quicker than I supposed they would, for I rather expected they would last clear through the month of June. The sudden taking-up of our offer was, I presume, a good deal owing to the fact that old potatoes began to get scarce, and new ones are high-priced on account of the cold, wet, and backward spring. We have at present nothing to give away except about 60 bushels of New Queen seconds, and we will hold to our offer as long as they last--a barrel of potatoes for every one who sends a dollar for GLEANINGS. To those who send us a new subscriber, and find the potatoes gone, we will give them any of the premiums we offered to you last year for a new subscriber. If this is not satisfactory we will return the money. This latter course, however, might be a little rough on the new subscriber; but we will try to make it satisfactory all around if it is not already so. Those who have paid up away ahead, with the view of getting a barrel of potatoes, may have their money back again if they prefer it; or they may avail themselves of any offer we have made during the past year for renewing ahead. We sincerely hope that the potatoes that have been distributed so lavishly will be the means of doing good in the way of giving our friends better varieties than they had before. Those who received the Thoroughbreds will, I am *sure*, find it a profitable transaction.

THE GLEANINGS CONTRIBUTION FOR THE STARVING PEOPLE IN INDIA.

Since our last we have received the following receipt:

BOSTON, June 8, 1897.

The American Board of Commissioners for Foreign Missions acknowledges the receipt of thirty-nine dollars, from A. I. Root, Pres.; contributed by The A. I. Root Co., $25; Geo. M. Kellogg, $5; W. C. Gault, $5; Lydia Wagner, $2; A. W. Harman, $1; Mrs. C. E. Hatch, $1, for famine relief in India.

FRANK H. WIGGIN, Treasurer.

Also the following since then: Mrs. G. J. Size, Scarboro Junction, Ont., $1.00; G. R. Noren, Waverly, Neb., $2.

"JESUS MY ALL."

The Home talks in this issue were closed with the last verse of hymn 103, Christian Endeavor Edition of Gospel Hymns No. 6. If our friends will hunt up this hymn and sing it in the family circle, they will get the idea that filled the heart of the writer. I wish especially you would sing it to the music in the book. I heard it at prayer-meeting just after I had finished my Home Paper, and it seemed to me that never before did praise and trust in God blend together so beautifully as on that Saturday afternoon.

THE WAY THINGS ARE WORKING AROUND.

At the present time you might almost as well expect to find a duck that does not know how to swim as to find a boy who can not carry a bundle and ride a wheel.

A BICYCLE TOUR

Three gentlemen for a European tour purchased new hundred dollar bicycles. One a Columbia—the others of well-known high-grade manufacture. They had an agreeable trip—particularly the Columbia rider. Before returning to America, it being late in the year—and wishing to buy new machines in 1897—they sold their wheels to a London dealer. The Columbia bicycle brought $65.00. The others $40.00 and $35.00 respectively. But one of the many proofs of Columbia superiority. If you look a year anead there is wise economy in

Columbia Bicycles **$100** TO ALL ALIKE

STANDARD OF THE WORLD.

HARTFORDS, $60, $50, $45

Better than almost any other bicycles.

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Greatest Bicycle Factory in the World. More than 17 Acres of Floor Space.

Branches or dealers in almost every city and town. If Columbias are not properly represented in your vicinity, let us know.

B. Hendrickson, Agent.

Medina, Ohio.

Are You Going to Buy

Apiarian Supplies or Bees?

If so, You Want the Best.

This is the only quality we offer. Our prices are right, and our '97 catalog describing them, and the management of bees, is yours for the asking.

We carry a large stock, and can ship promptly. Freight is a big consideration, often amounting to 20 per cent of the value of goods. Let us quote you prices on what you need, delivered at your station,

Freight Paid.

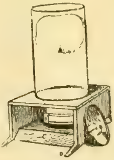
They will cost but a trifle more than others charge at the factory. Our aim is to please.

Apiary, Glen Cove, L. I. **I. J. STRINGHAM, 105 Park Pl., N. Y. City.**

Queens, Either Golden or Imported by return mail. Untested, 75c; Tested, $1.00; Breeders, $2.00. **W. H. LAWS, Lavaca, Ark.**

Don't Neglect Your Bees.

Bee-keeping may be made uniformly successful by judicious feeding. It is just as important with bees as with other stock.



Success in feeding depends very much on the feeder used. When you have tried the

Boardman Atmospheric Entrance-feeder

you will be convinced of this.

For descriptive circulars and price list, address

H. R. BOARDMAN, East Townsend, Ohio.

QUEENS. Either 3 or 5 banded, 60 cents each; 6 for $3.00. Nuclei and supplies cheap. **CHAS. H. THIES, Steeleville, Ill.**

Queens Given Away.

Gray Carniolans and Golden Italians. We will give a fine tested queen (either race) to all customers ordering 6 untested queens, and a fine select tested queen to all who order 12 untested queens at one time. The queens given away will be sent to customers in August.

Grade and prices of bees and queens.	Apr., May, June.	July, Aug., Sept.
Untested queen	.75	.65
Tested queen	1.50	1.25
Select tested queens	2.50	2.25
Best imported queens	5.00	4.00
1 L.-frame nucleus, no queen	.75	.50
2 L.-frame nuclei, no queen..	1.50	1.00
Full colony of bees, no queen in new Dov'd hive..........	5.00	4.00

We **guarantee** our bees to be free from all diseases and to give entire satisfaction. Descriptive price list free.

F. A. Lockhart & Co., Lake George, N. Y.

QUEENS Untested, 50c; doz., $6.00
Warranted, 60c; doz., $7.00
Tested, 75c; doz., $8.00

Imported Italian mothers only are used, and for industry, gentleness, and beauty their bees are unsurpassed. We have in our yard bushels of drones from imported mothers and their daughters, and a mismated queen is rare. No defective queens sent out. Remember that we are in the far South, and can send queens by return mail. Safe delivery. Money-order office, Decatur.

CLEVELAND BROS., Stamper, Miss.

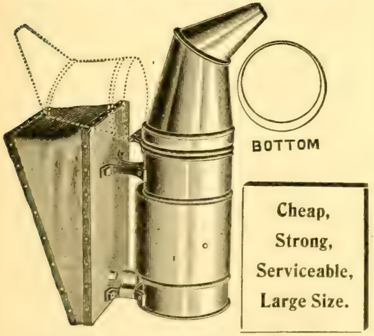
Orders filled by return mail or freight for A. I. Root Co's supplies, our choice strain Italian queens; one, two, and three frame nuclei. If you want good goods at low prices and in a hurry, send us your orders. 36-page catalog free.

JOHN NEBEL & SON, High Hill, Mo.

Italian Queens, either golden beauties or 3-banded imported stock. Tested, $1.00 each; untested, 70c each; half dozen, $4.00. One queen to new customer, 65c. P. O. M. O. office, Lavaca, Ark.

E. A. SEELEY, Bloomer, Ark.

The New Corneil Smoker.



JUST THE THING for those who want a first-class smoker at a medium price. Size of cup, 3¼ inches; curved nozzle, hinged so as to swing back; legs of malleable iron, secured by bolts. The blast is the well-known Corneil principle. Weight of smoker, only 20 ounces.

Price **$1.00**, postpaid, or **75c** if sent by express or freight with other goods.

THE A. I. ROOT COMPANY,
MEDINA, OHIO.

Send Your Beeswax

to M. H. HUNT, Bell Branch, Mich.,

and have it made into foundation. It will cost you only 12½c per lb. for thin surplus, and 15c for extra-thin light brood; 10c, medium brood, or heavy, 8c. A carload of Root's goods at bottom prices. Let me quote you prices, wholesale or retail. Large free price list full of information.

In writing advertisers please mention GLEANINGS.

RED-CLOVER ITALIANS

Are fine large bees that work well on red clover. Are bred for business. One untested queen, 65c; two for $1.25; one warranted queen, 80c; two for $1.50; one tested, $1.25; 1 select, $2.00. Queens furnished in season, and satisfaction guaranteed.

C. M. HICKS, Hicksville, Wash. Co., Md.

ALL QUEENS

that are shipped from our apiary are to be depended on to produce strong colonies of fine honey-gatherers. We have but the purest Italians, and we take pride in furnishing the best of queens. Tested, $1 00 each; $11.00 per dozen. Untested, 75 cts. each, $8.00 per dozen. Safe arrival and satisfaction guaranteed on every order.

J. W. K. SHAW & CO.,
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Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. **Honest Goods at Close Honest Prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Look Here! Do you need queens? the purest and best. If so, we are prepared by return mail to ship the 3 band and golden Italians, and silver gray Carniolans, untested, warranted purely mated, for 50c; tested, 75c; breeders, $2.25.

JUDGE E. Y. TERRAL & CO., Cameron, Texas.

BEES **QUEENS**
Smokers, Sections, Comb Foundation, And all Apiairan Supplies cheap. Send for FREE atalogue. **E. T. FLANAGAN, Belleville, Ill.**

What More?

GUARANTEED

- Queens from best working stock.
- Reared by best methods.
- Cells and queens selected.
- Poor queens replaced free.
- 20 years' experience—7 as a q. breeder.
- 75c; six, $3.50; twelve, $6.50.
- Promptness.
- Safe arrival.
- Free catalogue.

J. B. CASE, Port Orange, Fla.

QUEENS BY RETURN MAIL.

Daughters of best imported queen mother, warranted purely mated to drones of imported stock from a different source; hence, a direct cross. 12 years as a honey-producer on a large scale has taught me what good queens mean to the producer as well as how to rear them. Price of queens, 50c each. Safe delivery and satisfaction, or money refunded. **L. H. ROBEY, Worthington, W. Va.**

BIG WONDER! The Smoke Engine goes without puffing; burns in the center; heats only the top; burns chips without drizzle; makes all the smoke wanted, without work; the best bee-smoker ever made; doesn't tip over.

T. F. BINGHAM, Farwell, Mich.

SPECIAL NOTICES FROM BUSINESS MANAGER

WEED DRAWN FOUNDATION.

We have been compelled to disappoint a good many who have ordered a supply of drawn foundation. Our machine was finished for a strip only two inches wide, and that not as perfect as we wanted to make it. A mishap occurred to the dies, making it necessary to repair. In doing so we have made them over new, and full size, 5 by 8 inches, and they are almost completed. We expect to have the machine running by the time this number is mailed. We have a number of orders waiting; but with increased capacity of the machine we hope to be able to supply promptly all that will be needed from now on for experimental use this season. If you have not seen any, and wish to try it, send on your orders. Pieces 4x8 inches (or 2 4x4), 5c each; 6 for 25c. A box of ½ lb., 75c, or prepaid for 90c. There is still time to give the drawn foundation a good test this season.

BUSINESS STILL BOOMING.

There is very little let-up on orders yet; and as the season advances the demands for immediate shipment become more imperative. We are in a little better shape than we were June first, but are still several days behind. If this week does not bring too many new orders we hope, by the end of the week, to have almost all orders filled. We continue to send out three full carloads a week, besides the multitude of smaller orders. We are shipping this week the ninth carload for the season to Jos. Nysewander, Des Moines, Iowa, and the fourth car to Syracuse, N. Y.; have shipped the fourth car to St. Paul, and also to Chicago; the third to Geo. E. Hilton, Fremont, Mich., and the first to Byron Walker, Evart, Mich. We have also shipped a carload to L. A. Watkins Mdse. Co., Denver, Colo. Our records show that, up to this date, we have shipped over fifty full carloads this season, while up to the same date last year we had shipped forty cars. We are still running night and day, and are likely to continue the rest of this month, from present outlook.

KIND WORDS FROM OUR CUSTOMERS.

ROOT'S CATALOG.

A short time ago I had occasion to look over your catalog more closely than usual. I read a few paragraphs here and there; and the more I read, the more I was interested in its contents, until I had the whole pretty well perused. It is not only a catalog or price list, but it is a veritable bee-keeper's cyclopedia. It contains a little of every thing, and that "little" seems to be the cream of all bee-literature. It contains more matter of real value on its few pages than some 300-page volumes. I am surprised that we have not before realized its worth, or, if we have, have not mentioned it. There is hardly a question in the line of apiculture that the pamphlet does not answer in some way. Its condensed information makes it valuable, not only to the amateur and professional bee-keeper, but to every one who is the least interested in bees. I should not consider a library complete without it.

Naples, N. Y. G. C. GREINER.

Mr. Root:—Yours was a kindly, generous thought, to send out potatoes to your GLEANINGS family; and when the nice new barrels came so promptly, filled with choice potatoes, it was too much, and we hoped it might be returned to you, "in basket and store," pressed down, full, and running over, for many years. LIZZIE HURLEY.

Mt. Carroll, Ill., June 9.

My dear friend, you do not know how your letter softened up some of our faces, and brought a smile to the face of one overworked faithful clerk. We had just been trying to untangle a snarl because two barrels of potatoes got "swapped," in our hurry in getting off over 500 bushels of premium potatoes in a little over a week. The two barrels of potatoes that got swapped contained other things of value, which made the matter more complicated. After some search among the records, overhauling the clerks, etc., I uttered an exclamation when I picked up your letter. The clerk mentioned said, "Oh dear! I hope it is not another mistake." In reply I handed her your brief but kindly epistle. Had you seen her face soften you would have felt amply repaid for your kind words. May God bless you for them. Such letters are sometimes like glimpses of oases in the desert of business, especially when business is rushing and crowding until almost everybody is overworked.

Single-tube Bicycle Tires.

Good ones, too, for

$5.00 Per Pair.

Including repair kit and pump. We have given them a thorough test and find them well made and durable.

THE A. I. ROOT CO., Medina, O.

QUEENS, **Pure Italians,** 3 or 5 banded, tested, $1.00; untested, 50 cts I have 500 nuclei. Can send queens by return mail.

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50 Cts. Each for Untested Leather-colored Italian Queens. If you want cheap Bees, Queens, and Sweet-Clover Seed, send for my price list.

Address **W. J. FOREHAND, Fort Deposit, Ala.**

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A Limited Number of Untested Italian Queens from pure stock, at 65 cts. each.

T. N. BRIGGS, Marion, Mass.

Wants and Exchange Department.

Notices will be inserted under this head at one-half our usual rate. Advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 c. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange Belgian hares, homing pigeons, White Leghorn eggs or breeding-stock, for Italian queens from imported mother, pure-bred geese, ducks, or ducks' eggs, or offers.

EUGENE MANNING, Jacksonville, N. Y.

WANTED.—To exchange for any thing useful, St. Bernard puppies at greatly reduced prices; also Pekin ducks. Bee hives 16x16x10 in.

W. W. PREVEY, Elroy, Wis.

WANTED.—To exchange three 100-gallon heavy tin tanks—improved honey-faucet, four bands, worth $5.00—for extracted honey.

WM. A. SELSER, 10 Vine St., Phila., Pa.

WANTED.—To exchange Pekin ducks or eggs for Italian queens, African geese or offers.

JOHN BURR, Braceville, Ill.

Black and Hybrid Queens for Sale.

I have a few mismated Italian queens, also a few black queens, very prolific. Will sell for 25c each, or 5 for $1.00. E. A. SEELEY, Bloomer, Ark.

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Golden,
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Best polished sections, $2.50 per M. Other goods in proportion. Let me make an estimate on your wants.

W. J. Finch, Jr., Chesterfield, Ill.

Honey Leaflet, by Dr. C. C. Miller. Why honey is more wholesome than cane sugar; honey as an article of diet; honey cooking-recipes. This leaflet is written for the benefit of consumers, and is put out at an extremely low price so that honey producers may distribute them free to their customers. Prices: 10, 5c; 100, 20c; 500, 75c; all postpaid; 1000, 75c; carriage extra.

THE A. I. ROOT CO., Medina, Ohio,

Three Car Loads.

My third car of goods from The A. I. Root Co. has arrived, and I am prepared to fill orders for regular goods by next train at Root's prices. Send for my 36-page catalog, or send me a list of goods wanted and I will make you bottom prices.

GEO. E. HILTON,
Fremont, Mich.

From the

Queen Specialist.

Light Italians of the 3-banded variety, bred from the same strains that gave such universal satisfaction from 1885 to 1890. All queens warranted purely mated, and shipped by return mail if so requested. Price 75 cts. each. Address

JAMES WOOD, North Dana, Mass.

Queens by Return Mail.

We are filling orders for queens, when required, by return mail. Untested, either Italians, Holy-Lands, Carniolans, or Cyprians, 75c each, $4.25 for six, or $8.00 per dozen. Tested queens of either race, $1.50 each.

We will give one untested queen and the SOUTHLAND QUEEN one year for $1.00. This offer is for new subscribers only. We wish you to read the only bee-paper published in the South. Sample copy and our catalog that tells all about queen-rearing, and almost a complete book on Southern bee-keeping, *free* for the asking.

Root's goods, Dadant's foundation, and Bingham smokers. Steam bee-hive factory and all kinds of bee-supplies. Write your name and address on a postal card and we will do the rest.

The Jennie Atchley Co.,
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Tested
Italian
Queens

By mail, in July and August, 60 cts. each.

J. C. Wheeler, Plano, Ill.

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that will just "roll" in the honey, and that are wonderful red-clover workers, also gentle to handle and exceedingly hardy, then try **MOORE'S STRAIN OF ITALIANS**, the result of 18 years of careful breeding.

Warranted queens, 75 cts. each; 3 for $2.00; per doz., $7.50. Select warranted, $1.00. Safe arrival and satisfaction guaranteed. Circular free. Those who have never dealt with me I refer to A. I. Root, who has purchased of me over 850 queens.

J. P. Moore, Morgan, Pendleton Co., Ky.

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Queens, $1.00. Bees by the pound, $1.00. Nuclei, two frames, with queen, $2.50; one frame, $2.00.

Also Barred and White P. Rocks, Silver Laced Wyandottes. Eggs for sitting, at $1.00 for 15.

MRS. A. A. SIMPSON, Swarts, Greene Co., Pa.

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FOR SALE. In 8-frame Dovetailed hives, queens from imported mothers. Price $3.00 to $4.00 per colony.

EDW. SMITH, Carpenter, Ill.

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With a view to encouraging membership to all kinds of bee-keepers' associations whatsoever, local or otherwise, we have decided to offer **Gleanings** at 75 cts. per name to members of such organizations. Old or new subscribers may take advantage of this offer; but in the case of the old, all back subscriptions must be paid up before the 75-cent rate for a year will be allowed; otherwise only 9 months will be credited.

We must either require all subscriptions at this reduced rate to come through the secretary, or we must have evidence of some sort that you belong to some bee-keepers' society. Simply a line from the secretary, stating that you are a member in reglar standing, will suffice. At your next annual meeting, bear this in mind; and if you wish to become a subscriber to this journal, hand 75 cents to your secretary, and when that amount is received by us your name will be placed on our subscription list for 12 months.

If you do not now belong to any association, send $1.75 to us or to Secretary Dr. A. B. Mason, of the United States Bee-keepers' Union, at Toledo, Ohio. Station B. This will entitle you to a year's membership and protection in the Union, and one year's subscription to this journal.

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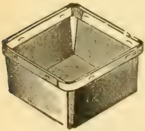

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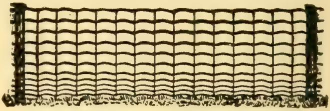

Confidence Restored.

Not **Page** confidence, that was never lost. Sales increased every year through the late "unprosperousness." Now comes 35 per-cent increase for the month of April. This shows that people like the **Coiled Spring** and like to **buy it of the owner**, rather than those who attempt to appropriate it without leave or license.

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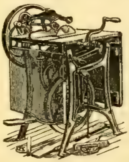

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The King **Windwheels.** Only 1 inch thick edgewise. Six-foot wheel does all general work. Weight of wheel 61 lbs. Latest and highest standard of excellence. Best of galvanized towers. Write to-day for full information to
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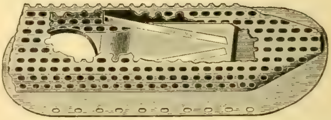
Porter Honey-House Bee-Escape.



Have you seen it? Just the thing to put on the doors or windows of your bee-rooms. Indispensable, you'll say, after you have tried it.

Price by mail, **25** cents.

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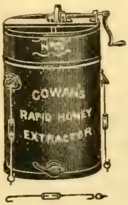

These are the best. We are prepared to furnish on short notice, from any of our several branches, 2, 4, and 6 frame Cowans, and 2-frame Novices.

If you want the genuine, see that they bear our name.

A 36-page catalog sent free on application.

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Organized to advance the pursuit of Apiculture, to promote the interests of bee keepers, to protect its members, to prevent the adulteration of honey, and to prosecute the dishonest commission man.

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EUGENE SECOR, Forest City, Iowa.

Next Annual Meeting at Buffalo, N. Y., Aug. 24—26, 1897.

Honey Column.

CITY MARKETS.

SAN FRANCISCO.—*Honey.*—Fancy white, 9@10; No 1 white, 8@9; fancy amber, 7; No. 1 amber, 6@7; fancy dark, 5@6; No. 1 dark, 4@5; white extracted, 4⅜@4½; amber, 3½@3¾; dark, 2@3¼; beeswax, 24@25. Honey crop is of unusually fine quality, and yield is fairly large. The demand is not active, and apiarists are unwilling to sell at prevailing prices.
HENRY SCHACHT,
June 14. San Francisco, Cal.

CHICAGO.—*Honey.*—Not any new comb honey on the market. Some new extracted is offered without sales of consequence, yet those effected are such as to establish a decline of half a cent per pound from our previous quotation. Beeswax without special change.
R. A. BURNETT & Co.,
June 24. 163 So. Water St., Chicago, Ill.

NEW YORK.—*Honey.*—No comb honey on our market. Some demand for white comb at 10@11. Extracted is arriving freely from the South, and selling fairly well at 50-52c per gallon for average grade, finer grades at 55-60c per gal. New California is beginning to come in, and sells at 4½@4¾ for light amber, and 5¼@5½ for white. Beeswax in fair demand at 26@27.
HILDRETH BROS. & SEGELKEN,
June 22. 120-122 W. Broadway, New York.

MILWAUKEE.—*Honey.*—The supply of honey in this market continues to hold out equal to the demand, although the choice quality is getting reduced, and the demand exists for such, while the common and poorer grades are hard to move at any price. Can quote white choice 12@14; white common, 10@11; dark, 8@10; extracted white, in barrels and half-barrels, 5½@6½; ext. amber, in barrels and kegs, 5@5½; ext. dark, 4@4¼; beeswax, 25@27.
A. V. BISHOP & Co.,
June 23. Milwaukee, Wis.

KANSAS CITY.—*Honey.*—Fancy white, new, 13@14; No. 1 white, new, 12@13; fancy amber, new, 11@12; No. 1 amber, new, 10@11; fancy dark, new, 9@10; No. 1 dark, new, 8@9; No. 1 white, old, 10@11; No. 1 amber, old, 8@9; No. 1 dark, old, 7@8; extracted white, old, 5@5¼; amber, old, 4½@5; dark, old, 3½@4; beeswax, 25@30. C. C. CLEMONS & Co.,
June 22. 423 Walnut, Kansas City, Mo.

PHILADELPHIA.—*Honey.*—Old comb honey mostly cleaned up. Odds and ends sold at any reasonable offer. Very little new in yet—not enough to establish a price, and will be no call till September. Extracted dark, 3½@4; amber, 4@4½; light, 5@5½. Prices will rule low; big crop everywhere. Beeswax, 25.
WM. A. SELSER,
June 22. 10 Vine St., Philadelphia, Pa.

CLEVELAND.—*Honey.*—Fancy white, 12@13; No. 1 white, 10@11; fancy amber, 9; fancy buckwheat 6@7; beeswax, 28@30. Honey is moving very slowly.
A. B. WILLIAMS & Co.,
June 21. 80-82 Broadway, Cleveland, O.

CINCINNATI.—*Honey.*—There is a fair demand for extracted honey at 3½@6, according to quality. Demand for comb honey is slow at 8@13. Considerable new extracted honey has been arriving for the past two or three weeks, and finds a pretty ready sale. Demand for beeswax is fair at 22@25 for good to choice yellow.
CHAS F. MUTH & SON,
June 22. Cincinnati, O.

BOSTON.—*Honey.*—Fancy white, 13; No. 1, 11@12; No. 2, 10; white extracted, 7; amber, 5@6.
E. E. BLAKE & Co.,
June 25. 57 Chatham St., Boston, Mass.

ST. LOUIS.—*Honey.*—Fancy white, 12@12¼; No. 1 white, 11@11½; amber, 9@10½; extracted amber, 4¼@4½; white, 4¾@5¼; beeswax, 25½@26. We quote you nominal price of honey. Not much being sold at present, and what is, is a speculative way.
WESTCOTT COMMISSION Co.,
June 26. 213 Market St., St. Louis, Mo.

DETROIT.—*Honey.*—Fancy white, 10@12; No. 1 white, 10@11; fancy amber, 8@9; No. 1 amber, 7@8; white extracted, 5@6; amber, 4@5; beeswax, 25@26.
M. H. HUNT,
June 25. Bell Branch, Mich.

COLUMBUS.—*Honey.*—Very limited demand for honey. No new crop on the market, but expect small lot next week. Do not look for very good prices. White clover selling at 12½@13; amber, 7@8.
THE COLUMBUS COM. & STORAGE Co.
June 23. 409-413 N. High St., Columbus, O.

MINNEAPOLIS.—*Honey.*—Best white-clover comb honey, 14; amber, 10@12; water white ext., Wis., 6¼@6¾; amber, ext., Wis., 5@5½; Cal. water white, 6@6½; Cal. amber, 5@5¼. Market nominal.
S. H. HALL & Co.,
June 22. Minneapolis, Minn.

FOR SALE.—Fancy extracted in 60-lb. cans, and fancy comb (Danzy sections) mangrove honey in 30-lb. cases. Cash offers wanted, f. o. b. here.
H. PRICE WILLIAMS, Miami, Florida.

Italian Queens, either golden beauties or 3-banded imported stock. Tested, 90c each; untested, 55c each; 6 for $3.00. One sample queen to new customer, 50c; breeders, $2.00 to $3.50 each. P. O. M. O. office, Lavaca. **E. A. SEELEY, Bloomer, Ark.**

QUEENS, **Pure Italians,** 3 or 5 banded, tested, $1.00; untested, 50 cts. I have 500 nuclei. Can send queens by return mail.
DANIEL WURTH, Falmouth, Rush Co., Ind.

Tested Italian Queens By mail, in July and August, 60 cts. each.
J. C. Wheeler, Plano, Ill.

Headquarters for Red-clover Bees.
Tons of honey are what they are gathering now. Queens wholesale and retail. One queen, 50c; 3 for $1.25. **G. ROUTZAHN, Menallen, Pa.**

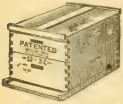
WARRANTED Three and Five Banded Italian Queens at 50 Cents each.
GEO. W. COOK, Spring Hill, Kan.

What Has Been Told Lately

In the *Bee-keepers' Review*? did you ask? Well, in the Jan. issue Mr. Aspinwall explained a simple plan whereby the mating of queens at the home yard may be secured with almost *absolute certainty*. R. L. Taylor, in the February issue, describes an experiment made to determine if honey stored in the super of a foul-broody colony was infected with the germs of foul brood. In the March number, Isaac Lundy told "How to Get Drawn Combs right in the Sections, and Secure Comb Honey at the same Time." In the April issue, R. L. Taylor tells at what a high temperature he kept his bee-cellar last winter, and the results. The June issue contains a long article from Mr. Lundy, explaining his methods, and giving the details of a plan whereby he secures drawn combs during the white-honey harvest. Of course, there are other articles, editorial comments, extracts, notes from foreign bee-journals, Hasty's "View of Current Bee Literature," etc.

The *Review* is $1.00 a year; but for the sake of getting new subscribers I am offering it for 1897, and 1000 first-class sections, for only $2.50; or the *Review* and a Bingham Conqueror smoker for $1.75; or the *Review* and a fine tested Italian queen for only $1.50.

W. Z. HUTCHINSON, Flint, Mich.



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☞ Further particulars regarding the premiums, also special catalog of the Danzenbaker Hive and System, furnished on application. Address

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Order from catalog; prices are same as from factory.

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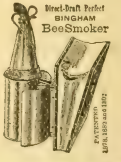
Bingham Perfect Bee-smokers and Honey-knives.

Smoke Engine (largest smoker made.)	4 in. stove.	Doz., $13.00;	each, by mail,	$1.50
Doctor	3½ "	" 9.00;	" "	1.10
Conqueror	3 "	" 6.50;	" "	1.00
Large	2½ "	" 5.00;	" "	.90
Plain	2 "	" 4.75;	" "	.70
Little Wonder (wt. 10 oz.)	2 "	" 4.50;	" "	.60
Honey-knife		" 6.00;	" "	.80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer, I write for a circular. I do not think the 4-inch Smoke Engine too large.
January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

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STRAY STRAWS
FROM DR. C. C. MILLER.

WHEN NIGHTS ARE SO HOT one can't sleep, bees seem to get in their best work.

WHAT SIZE should starters be in sections? is asked in *American Bee Journal*. Three of the 21 repliers want small starters, the rest full sheets.

I'M RATHER GLAD friend Thompson's figures as to economy of making one's own foundation are countered on page 446. I'd rather not believe it's cheaper to make my own foundation. Don't want the bother and worry of it.

NEVER BEFORE, I THINK, were railroad rates so low to a big bee convention as to the Buffalo convention, Aug. 24—26. As attendance is generally in proportion to cheapness of travel, this ought to be the biggest convention we have ever had.

F. L. THOMPSON is right, page 445, in thinking you can't drain the liquid part from all kinds of granulated honey. It's only that with coarse grains, and T. F. Bingham thinks it can be done in no case with properly ripened honey. Possibly that's true.

JUNE 9, No. 156 was unqueened. June 15 it had an egg in a queen-cell. Where did that egg come from? Had it remained there 6 days without hatching? or was it the product of an aspiring worker? I incline to the latter view—have had several such cases.

WHEN YOU HAD such a tough time with that swarm, Ernest, p. 458, didn't it meander along your backbone that it might have been better to have had the queen clipped? [Yes, if we were not selling queens right along we would clip all our queens after they were laying. See editorials; also Doolittle's article.—ED.]

N. E. FRANCE, the Wisconsin Foul-brood Inspector, writes *American Bee Journal*, "I find many Wisconsin bee-keepers who did not know their bees were diseased, and nearly every case is where they do not take a bee-paper." May be one section of a foul-brood law ought to compel every bee keeper to take a bee-journal.

IT IS POSSIBLE that the Monnier treatment for paralysis, page 447, had nothing to do with the cure. It is also possible that it had every thing to do with it, and it is so easily tried that many ought to report as to its efficacy within the next two months. Won't some of you paralytics, for the general good, try it, and promptly report success or failure?

IN REPLY to your question, p. 441, Mr. Editor, R. Wilkin wants a term that in one word comprehends the hive with its contents—bees, combs, and all. What word have we now for that? [There is no term covering such an idea. Perhaps "stock" would come the nearest to it. This term is sometimes used in the sense above described, and sometimes applying in a sense to the bees only.—ED.]

THE FEW LINDENS to be found here are doing better than your Medina trees. Most of them are loaded with blossom-buds. [I hope your basswoods may more fairly represent those over the country generally. It would be worth much, if we could know the probable prospects from basswood over the country. If no bloom is to be expected, then this will have a tendency to stiffen prices a little on white clover.—ED.]

IT LOOKS STRANGE to see supers nearly filled with honey, and no sealed honey in the brood-frames; but that's common this year. Strong colonies and a *sudden* flow of great abundance. [We do not find that condition here at Medina. I suspect the reason is, that our home apiary is overstocked. We are this week starting an out-apiary to give some relief to the home yard. *Later.*—Yard is located. Bees at the out-yard are doing better than at the home yard.—ED.]

AN UNUSUAL FEATURE of swarming this year is the very little preparation made in advance. The old rule, that the swarm issues when the first cell is sealed, is utterly ignored, and in most cases queen-cells have only eggs. It may be different later. Possibly it may be accounted for by the change within a week from very cool to very hot weather, and from the point of starvation to a flood of honey. [There are some other unusual features about swarming this year. See editorials.—ED.]

PROFESSOR COOK is right, page 449, and he's wrong. We ought never to have had two organizations, and we never would have had them if he and the other members of the old Union had understood correctly. But when amalgamation was killed, there was nothing left but to start the new organization. If wise counsels prevailed there would even yet be a union of the old Union and the new Union. [Many of us hope that wise counsels will yet prevail.—ED.]

TRANSFERRING 21 days after swarming is perhaps better than during fruit-bloom. [Yes, perhaps; but during fruit-bloom there is very little honey in the combs, comparatively. Twenty-one days after swarming the combs may be crammed full. I have transferred a good many colonies after the honey-flow, and it was no pleasant job. It also occurs to me that, 21 days after swarming, robbing would be bad, and cutting up combs filled with honey would only aggravate matters. During fruit-bloom, combs would be comparatively light, and bees would be busy on fruit-blossoms.—ED.]

THERE! I'm glad we have a standard set for rapid section-folding—1000 in 40 minutes. But, say; that girl has the advantage of long and exclusive practice, and common people needn't be discouraged at 1000 or less in an hour. Now give us a mark to aim at in using the Daisy foundation-fastener? How many starters does your expert put in in an hour! [Our people have never timed themselves on startering sections; but a fair average speed is about 500 an hour. They say they could do it a little faster, but never tried to see what they could do at their best.—ED.]

THE A. I. ROOT CO. will take hold of a uniform honey-package if some organization will. Page 444. Why wait for some organization? But I suspect there was a shortage of "nots" in the printer's case when he set that sentence. [You are right, doctor. One little *not* was inadvertently omitted. I tried to say if no one else would take hold of the cheap extracted-honey package the A. I. Root Co. would. But we do not care to do so unless the demand is made sufficiently strong to warrant us in laying in stock at our branch offices and agencies. —ED.]

JOHN MCARTHUR, in *American Bee Journal*, thinks it is ridiculous to describe the markings of workers and not of queens and drones. It does seem a little so, but I couldn't give a distinct description of an Italian drone; and while belaboring me for my ignorance he fails to give such description himself. [The fact of the matter is, that the color of the drones and queens may vary all the way from black to a light yellow in very pure stock. On the other hand, workers themselves must show uniformly three yellow bands. When these three show, the other characteristics are present. Some of the blackest queens we ever had, produced uniformly nicely marked three-banded Italians. The drones from one of the best breeding-queens we ever had were almost black.—ED.]

THE *Bee Master* is the name of a new bee-journal published in England. It makes the unique statement that it has no editor, and its columns show it; for a good editor would not allow so many abusive personalities. It is for Punic bees and against the *British Bee Journal.* [While nominally there may be no editor to this new bee-paper it is pretty evident that John Hewitt is the presiding genius. The fact of the matter seems to be that this gentleman is sore over the fact that the *British Bee Journal* and GLEANINGS said some plain and truthful things about Punic bees. Having started a journal of his own he is again extolling the merits of Punic bees—a variety that is cross and bad propolizers, with hardly a redeeming quality.—ED.]

AIKIN AND YOU, Mr. Editor, don't agree as to the advisability of selling consumers candied honey. I'm with Aiken. C. F. Muth has for years had his customers educated to demand candied honey. Suppose you sell it liquid. Before it's half used up it candies; and the customer, knowing nothing about properly melting it, considers it spoiled, and doesn't want any more honey. Wouldn't more honey be sold in the long run if it were sold granulated, and people instructed what to do with it? [Aikin may be right for his class of trade, especially if he has educated his customers up to the idea of candied honey; but the general run of consumers do not take very kindly to candied honey. The retailers nearly all say that the honey should be liquid, and kept so. Mr. Chalon Fowls, M. H. Tweed, and numerous others, hold to this idea. They visit the grocers selling their honey, and any bottles containing honey candied, or partly so, are exchanged for those that are liquid. *Later.*—After writing the above, J. A. Buchanan, who retails so many carloads of honey, says Aikin's idea "looks well on paper, but in practice it is different." He promises to write an article explaining his position more fully.—ED.]

CONFLICTING TESTIMONY as to foundation without papering comes from two southerners, p. 453. Now, whose testimony shall be taken—that of the man who, without saying he has tried it, says it *would* get matted together, or of the man who says he tried it and it *didn't* get matted together? This week I used brood foundation made five years ago, kept in boxes without papering, standing through one summer where the sun shone through the window directly on the boxes, and it was as good as ever. [Since those items were published in regard to papering we have received a letter from a customer in the South, who, having ordered the foundation unpapered, reports back that some of the sheets stuck together. We have hardly dared not to paper unless we have received special directions to the contrary. It makes lots of extra work in unpapering, and if it could be dispensed with it would save one extra automatic attachment to our machine, for the great bulk of our foundation is now all papered by machinery. So far as we are concerned, it makes very little difference whether we paper or not. If I were in the North, however, I think I would order all my foundation unpapered. In the South it might make trouble to leave the paper out.—Ed.]

Ridge-Pole Musings

By R. C. Aikin.

BEES EVAPORATED; A NEW MALADY.

In the spring of 1891, when I had the care of Mr. N. C. Alford's apiaries at Fort Collins, Colo., I had an experience that I had never heard the like of before nor since until the past spring.

The bees I had charge of were in three apiaries—one in town, and two about seven miles out. The out-apiaries were about 1½ miles apart—one on the river-bottom, and the other a mile or so from the river. It was my custom in the spring to go to each apiary about once in two weeks or thereabouts, my visits becoming more frequent as the season advanced to near the honey-flow. The books in which I made the records were, of course, left with the proprietor when I left his employ in the fall of 1891, so I shall have to speak from memory and approximate the dates, etc.

I had been watching carefully the progress of brood-rearing, and had the colonies quite strong in both bees and brood. The bees had been packed in chaff, and all in ten-frame hives. Many colonies were so strong that they were clustering out, although we had not unpacked yet. This was in May. While they were so, I had looked all over and equalized stores and brood, then was absent about ten days, I think. About the last days of May or first of June I went to the out-apiaries to again inspect as to stores, remove packing, and do such work as would guard against swarming. I had not noticed any thing wrong at the home apiary, nor any very marked features indicating wrong conditions at the first apiary visited; but when I reached the river apiary, and began to look at the hives, I was astonished at the very few bees in them. I went to some hives that I knew had been clustered out about ten days previously, and I found not enough bees to cover the brood. The weather was warm, the bees packed in chaff, and the few bees left were spread all through the hives caring for the brood. The weather was so warm that there was no loss of brood; and as they had from four to seven combs well filled, the hives were soon very populous again.

My employer said the high winds had blown the bees into the river. The stream is only a small one, from 10 to 25 feet wide. The other apiary, 1½ miles away, showed some loss too, as a careful inspection showed, though, as I said before, it was not so marked as to call special attention to it until I had visited the river apiary. There was also another apiary some three miles away that the owner said was afflicted in the same way. Some of the colonies were so depopulated that, when I lifted combs, I could lay my open palm on the face of a comb of brood and scarcely touch a bee. It was not what I understand as spring dwindling. The bees were mainly young, for bees had been hatching for weeks. At the time, I doubted the loss being the result of winds, though I could not account for it in any other way, so I said little or nothing more about it, because others said it was the wind.

From the above experience until the last spring (1896) I did not see or hear any thing more of the trouble; but the apiarists about Denver had a rather vivid experience last spring, that brought the matter up in a very serious light.

At the annual meeting of our State Association that met in January we had arranged to hold a spring meeting. In arranging dates through the executive committee I was in correspondence with Mr. Frank Rauchfuss—our secretary—who lives near Denver. I live 50 miles north of Denver. Mr. Rauchfuss reported that he thought it useless to do any thing toward a meeting, for all the bee-keepers thereabout were completely discouraged, because their bees were nearly all dead. However, we went ahead and had a meeting, although but few came out, and they all had the blues.

The trouble about Denver covered a diameter of fifteen or twenty miles, as nearly as I could find out. The Rauchfuss Brothers are good apiarists and close observers, and they told me the trouble came very suddenly. I think they said it lasted only three or four days. The time, I think, was about the middle or last of

May. There were many hatching bees, and brood in three to five combs. The bees just vanished, and were nowhere to be seen. If they had died in or about the hive, possibly we might have found out what was the matter; but they seemed to evaporate, hence I have called it "evaporation." The trouble this time was more sweeping and disastrous than in my experience in the spring of 1891. The loss of bees was so complete that many colonies had not half a teacupful of bees left, where, less than a week before, they covered brood in three combs and upward. The queens, it seems, were always left; but the workers so completely evaporated that the brood perished. The Rauchfuss Brothers reported they had over 200 colonies, and there were not enough bees left to make 25 good ones. All apiaries were not alike affected—that is, to the same extent. I saw but one of the apiaries affected (the malady did not extend to my territory), and that was a few colonies that Mr. W. L. Porter had in North Denver. Those few colonies had three to five times more brood than they could care for. In fact, they were so very weak that it was only the most favorable weather that would enable them to pull through, and this was about the second week of June.

As I said of the experience I had in 1891, many said it was high winds. Others said it was the smelter smoke that killed them. It was just as windy at Loveland, and in badly affected districts protected apiaries were as bad off as unprotected ones. Then, too, it hit hard where the smelter smoke did not go, and places it did go were "O. K." It seems that it could not be accounted for by fruit-bloom spraying, either, though it occurred about that time. It remains yet a complete mystery. Should it strike a whole State as it struck Denver last year, the consequences would be almost annihilation of the bee-business. I hope our Colorado apiarists will be on the lookout this year to watch the trouble if it should appear.

Later.—Since writing the above the Colorado State Association has had another meeting. I understand the new disease, or whatever it is, was largely discussed, but I believe without any definite results. Paralysis has been more or less in Colorado, but I can not think this trouble is the same. I have several times had some loss of bees in May, especially if there came a cold rainstorm. Bees would bloat, and crawl out and die about the yard, many getting from twenty to thirty feet from the hive, jumping and hopping in their effort to fly. Some call this "May sickness." It comes about the time of apple-bloom. I had one colony that was afflicted in this way last year, and it did not get over it for a number of weeks.

Before this is published I may possibly learn more of these matters. I hope to see many of the apiarists in Colorado in April and May—at least by May; and as I shall be going by wagon I shall have some opportunity to gather information.

Loveland, Colo.

[What you have described does indeed seem to be a new sort of disease—at least I never heard of it before, or at all events where the malady seemed to be so destructive and far-reaching. At two different seasons in our own apiary we noted quite a loss of the workers. Examination of the grounds showed that hundreds and almost thousands of workers with defective wings were flying about, and crawling up blades of grass. The bees were not bloated nor distended, and were apparently perfect in every respect save the wings. I believe I am quite familiar with bee-paralysis, and I feel very certain that it is nothing of this order. It is possible that what I have described was a milder form of what appeared about Denver. In our own case we could scarcely account for the trouble—at least, why the wings of the bees should be defective. It is possible that a peculiar kind of flora tore the wings as the bees went in and out of the blossom in quest of honey or pollen. I should be glad to have our readers report any similar cases that may have come under their notice. By comparing notes we may be able to determine what the trouble is.—ED.]

RULES FOR GRADING HONEY.

THE IMPERFECTIONS OF THE ACCEPTED GRADING; CRITICISMS AND SUGGESTIONS.

By J. E. Crane.

On page 157 of GLEANINGS, W. A. H. Gilstrap says, "I never heard of a half-crop of honey in this valley that was *actually* water-white, or that had sections actually unsoiled by bees. *I hope grading-rules will not be among the impossibilities next season.*" I have underscored the last sentence in this quotation, and will use it as a text for a short discussion of that already much-discussed subject, *Grading.*

The bee-keepers of this country were two or more years in discussing and making rules for grading; and now we have had two or more years in which to practice these rules; and our bee-journals have certainly done their duty in trying to enforce them or bring them into general use. May it not be well, before another crop is gathered, to inquire what have been the results, what the advantages to bee-keepers, what the defects, if any, in those rules? And yet very few, I fear, will care to stand up and express their dissatisfaction, however they may feel, with these rules adopted by the assembled wisdom of the American International Bee-keepers' Association; yet Mr. Gilstrap gives us to understand that those grading-rules are among the impossibilities. He does not say they are impossibilities, but hopes rules will be adopted that are *not* impossibilities.

For one I should like to know how many bee-keepers have tried to grade exactly by those rules, and their success. How many dealers bought and sold honey graded accurately by those rules, and their experience?

Experience-meetings are often of value. The last year we had an unusually fine crop of honey in this section, and I said to myself, "I will try to grade my honey just right if I can. I even cut out the rules, as adopted by our International Association, from one of our journals, and tacked it up on a door close by where I was at work, that they might be handy to refer to often, as I was in doubt. Let us see how it worked.

I pick up a section. It is unsoiled, either wood or comb; is of even thickness, and comb to wood attached all right; but, alas! it is not "Fancy," for a dozen cells on one side, inside of the outside row, at the bottom, are unsealed! It does not matter that the outside rows on both sides of the comb are nearly all sealed; those unsealed on the next row from the bottom condemn it.

I next handle a section that seems all right; but, hold! the separator was a little warped, and the comb is not exactly of even thickness. Not one person in twenty would notice it; but a bee-keeper will, and it must be thrown out.

Again, I find a section that fills the bill; but, again, I am disappointed; for on one side, near the bottom, a little brownish tint shows travel-stain. This section will not even answer for No. 1, for is not No. 1 to be without travel-stain? And yet I would as soon place this comb on my table as any other, even if President McKinley were my guest.

I pick up another section; and, while the comb is faultless, the section is a little stained with propolis. The propolis has been removed, but it does not look "unsoiled." This must not be labeled No. 1. Let us be accurate.

The next comb proves a great success. It is "Fancy" in every respect. We are more hopeful. We shall yet have a few cases of real orthodox "Fancy;" but the very next comb, although otherwise all right, has two little cells with their eyes open, inside of the row next to the wood. Half the cells next the wood are sealed; but nothing is said about that in the rules, and we are going to grade our honey by rule. So this section is not fancy—only No. 1.

Again we try it, and are rewarded in finding one or two fancy combs with another equally good; but a small knot-hole in the separator caused a little bulge on one side of the comb, while another is "just a little" soiled on one side by the very industrious Italians bringing up cappings from the brood-chamber and mixing with the new wax, and thus soiling it enough to be perceptible, and we can not even grade it No. 1; but as there seems to be no grade below that, what shall we do with it? I believe some of our largest dealers say they have no use for only two grades. And so I might go on giving my experience in trying to grade by rule; but after trying it a while I gave up in disgust. It seemed as if the bees had never been informed that these grading-rules had been adopted in Washington some years ago by a lot of very wise bee-masters, and so they have kept right on finishing off their surplus without any regard to them in more than twenty different ways, putting pollen into some of the whitest combs, leaving a cell uncapped here and there, or forgetting to attach the combs at their edges firmly enough to satisfy the rules, although strong enough to bear transportation to the ends of the earth. Worse than this, they have desecrated and tramped over their own work until it is unfit for any grade according to the rules.

I said I gave up trying to grade by rules adopted by our N. A. B. A., and so I did—not because it was impossible, perhaps, but wholly impracticable and unwise. Had I succeeded in getting one-fourth or one-half of my honey to correspond with "Fancy" of the rules laid down, I have no reason to believe I should have received a penny more for it than for it as graded, while I should have been quite sure to receive less for the remainder.

I asked one of the largest dealers in New England to make any suggestions or criticism upon my honey, or find all the fault with it he could. He wrote me it was entirely satisfactory, except that it was rather heavy weight. The season being good, the boxes were heavier than usual. I took 24 cases out of a pile of several tons, and shipped to Liverpool, and soon had an order from there for 240 cases just like those I sent, which sold in the open market there at the same price as very best grades of English honey, notwithstanding the English prejudice against foreign goods.

In looking it over I do not see how I could have graded my 1896 crop of honey to any better advantage than I did. And, again, I feel that had I tried literally to follow the rules laid down I should have missed it. It is undoubtedly desirable to have some general rules in grading for commercial purposes, or to facilitate the trade of honey in large lots. I do not see how half a dozen lines can describe the process of grading so as to do justice to both producer and purchaser. Much must depend on the good judgment of the one who grades, as well as in following the rules.

Brevity is said to be the soul of wit; but I doubt if brevity in rules for grading honey is any part of wisdom. According to the rules as they now stand, a speck of propolis on the outside of a comb, or even the section, would spoil it for "Fancy" or even No. 1, while a heavy base or septum of wax, or even several cells partly filled with pollen, might pass for "Fancy."

I take up a bee-journal and look at the quotations, and I am not surprised to find considerable variation in the price in the same market of a single grade of honey. In the *Bee-keepers' Review* for March, now before me, I notice that R. A. Burnett, of Chicago, one of the largest wholesale dealers in the country, quotes "Fancy" at 11 to 12 cts., while No. 1 white he quotes at 10—as much difference between different lots of "Fancy" as between "Fancy" and No. 1.

Batterson & Co., of Buffalo, in same issue of *Review*, quote "Fancy" 9 to 10 cts., and No. 1 white 8 to 9—quite as much difference in price in the same grade as between different grades.

Middlebury, Vt., May 7.

[For some little time before the article above came to hand, we had been having some correspondence with a number of bee-keepers, asking for their private opinion in regard to the grading rules adopted by us and other publishers of bee-journals. Up until a year or so back there had been no grading-rules in force, and it finally occurred to me that the bee-journals might themselves adopt a set of rules without reference to any convention or organization, and I selected, for GLEANINGS therefore, those prepared by Dr. C. C. Miller, which I herewith give you at this time along with the Washington North American grading side by side.

WASHINGTON.	MILLER.
FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.	FANCY.—All combs straight, white, well filled, firmly fastened to wood on all four sides; all cells sealed; no pollen, propolis, nor travel stain.
No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel-stain or otherwise.	No. 1.—Wood well scraped, or entirely free from propolis; one side of the section sealed with white cappings, free from pollen, and having all cells sealed except the line of cells next the wood; the other side white, or but slightly discolored, with not more than two cells of pollen, and not more than ten cells unsealed beside the line of cells touching the wood; the comb fastened to the wood on four sides.
	No. 2.—Three-fourths of the total surface must be filled and sealed; wood well scraped of propolis.
	No. 3.—Must weigh at least half as much as a full-weight section.
In addition to this the honey is to be classified according to color, using the terms white, amber, and dark. That is, there will be "fancy white," "No. 1 dark," etc.	For the classes of honey I would suggest the four already in use, sufficiently understood from the names alone; namely, LIGHT, AMBER, DARK, MIXED.

After I started to put these in force for GLEANINGS, Mr. Hutchinson, of the *Review*, wrote, asking why we should adopt a *new* set of rules when the Washington grading had been adopted by him for two years, without one word of dissatisfaction or complaint. This seemed like a clincher, and accordingly I threw Dr. Miller's grading overboard (and I guess I must have shut my eyes when I did it). I adopted the Washington grading, and immediately suggested the wisdom on the part of the publishers of the other journals to help us put the grading rules into force. Some of the brethren (not the editors) demurred, but (again I shut my eyes, I think) demurrers I would not accept any more, because I thought it was high time that we should try something, and not keep continually "talking," and doing nothing.

Well, two years have elapsed. The Washington grading has been tried and found wanting; referring to which, one intelligent bee-keeper, in a private letter, says:

"The first thing that strikes me is a feeling of wonder that a set of honest and intelligent men could agree to the Washington grading. I can see how intelligent rascals or honest ignoramuses might do so, but not men both intelligent and honest."

Now that I have my eyes wide open I do not know whether to call myself an "honest ignoramus" or one belonging to the other class. Whichever it is, I am in good company. Brother Crane himself was present in Washington when the grading rules were adopted, and so was Mr. Secor, Mr. Frank Benton, and a score of others; and later on was added to the list the editors of the various bee-journals.

Mr. Byron Walker at the very outset showed that the Washington rules were drawing things down too fine—that it was impossible to grade honey strictly according to them. To prove his assertion he actually advertised to pay $1.00 a pound for "fancy" honey graded strictly according to the Washington grading. I was almost inclined to refuse his advertisement, for I hardly thought the man was in his right mind to offer such a price on honey. But you see he had his eyes open (though mine were shut) and knew what he was doing. It is needless to say that he failed to get a single pound of honey. I suspect that, if we had sat right down, as Mr. Crane did, and actually tried the rules in Washington, that city where wisdom sits supreme, we should have seen they were practically good for nothing.

I asked some of the brethren, with whom I had been having correspondence, to give us their ideas regarding the rules already in force, and to make such amendments as, in their judgment, would make them all right. The following letter from Byron Walker has been lying on my desk for some time, and will explain itself:

I find it quite difficult to make any amendments in a few words that would give my ideas of what the grading should be. Mr. Thompson's suggestions are mainly in the right direction; but I think it necessary, in order that such rules be of practical use, that more definite terms be used with reference to the matter of discolored and unsealed combs. In fact, I see no reason for materially altering the criticism in my article on this subject, published in the *American Bee Journal*, vol. 28, page 817. Certainly more than two grades are necessary to include the bulk of marketable comb honey; but the suggested fourth grade could be dispensed with. I would suggest that combs varying considerably in thickness, but which would otherwise find a place in the fancy grade, be assorted so that they will not vary in weight more than two or three ounces in any shipping-case. I have no doubt that too much stress has been placed upon sections being entirely free from propolis, in order to be ranked as fancy. The fact is, while reasonably neat sections are quite desirable, the suspicion of there being manufactured comb honey on the market is so prevalent, both among grocers and consumers, that at least a slight soiling from propolis will, as a rule, help rather than detract from the sale of even the fancy grade.

Chicago, Ill. B. WALKER.

The following is the draft of the grading-rules amended by him. By referring to the Washington rules above, the reader will see just where they differ. You will notice that he leaves out some things that are almost impossible of attainment in "Fancy," and makes No. 1 flexible enough to take in the great bulk of the best honey of the bee-keeper.

WALKER'S AMENDED WASHINGTON RULES.

FANCY.—All sections to be well filled, combs straight, of comparatively even thickness, and firmly attached to three sides, the comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with one-eighth part of comb surface considerably soiled or unsealed, or the entire surface slightly soiled. While a slight soiling of sections by propolis should not exclude them from the fancy grade, the sections must be reasonably neat in both grades.

Prior to the reception of Mr. Walker's letter and his rules of grading, I had received a draft of the rules from Mr. B. J. Thompson, of Waverly, Wis., which he had modified to read as follows:

THOMPSON'S GRADING RULES.

FANCY.—All sections to be well filled, combs straight, and firmly attached to all four sides, the comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood. The wood, if stained, to be thoroughly cleaned in every grade.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; comb may be soiled a little by travel-stain, propolis, or otherwise.

Dr. Miller, having seen both Mr. Thompson's and Mr. Walker's drafts, wrote as follows:

After carefully comparing the gradings, putting much faith in Walker's grading as an honest man of intelligence and much experience, and after considerable discussion with Emma, who doesn't entirely agree with me, here's what comes:

FANCY.—All sections to be well filled, combs straight, firmly attached to three sides, the comb unsoiled by travel-stain or otherwise; all the cells sealed except the row of cells next the wood, the outside surface of wood well scraped of propolis.

No. 1.—All sections well filled, but combs uneven or crooked; one-eighth part of comb surface soiled or unsealed, or the entire surface slightly soiled. Outside surface of wood well scraped of propolis.

Mr. Thompson leaves out of fancy "of even thickness," and Mr. Walker says, "of comparatively even thickness." I leave it out entirely. If you have "combs straight" there won't be much trouble about "even thickness," and "comparatively" is indefinite at best.

Both men omit "both wood and," which I think is all right; but by putting nothing in its place they jump to the other extreme, and you will see that allows a man to put in fancy honey all his sections without a knife ever touching one to scrape the propolis. So I add "outside surface of wood well scraped of propolis." Walker comes at it indirectly by saying, "reasonably neat in both grades."

In No. 1 I omit "detached at bottom," as that is not necessary, being already allowed in fancy by saying, "attached to three sides." I think it might be better to word No. 1 thus:

"No. 1.—The same as fancy, only the combs may be uneven or crooked, one-eighth part of comb surface soiled or unsealed, or the entire surface slightly soiled."

The other way leaves it that the comb need be attached only at the top, which would hardly do for shipping. Please understand that this last No. 1 stops at the paragraph quoted.

I've tried without prejudice to say what change would allow such men as Walker and Muth to use the grading; but no amount of tinkering will make it right to call the bulk of the crop fancy and the rest No. 1. It isn't honest, and that's all there is about it.

Emma objects, and with no little reason, to "combs unsoiled by travel-stain or otherwise." If it were *really* fancy it would be all right. But as fancy is really the bulk of the crop, and No. 1 the seconds, it will be impossible to get more than half the sections to come up to the requirement in that particular. It isn't the general thing to take off a super of sections in which every section is snow-white. Some of the comb surfaces are *slightly* discolored before three-fourths of the sections are sealed. A very slight discoloration does not and ought not to rule them out. But perhaps that can stand, as in practice it can not be strictly adhered to.

I don't like any of it, but I think I've tried to follow out the spirit of what you want.

C. C. MILLER.

Marengo, Ill.

[Now, I am not going to say at this time which set of rules is best; but one thing is certain: Before we adopt another set for GLEANINGS, we shall need to know that the set we *do* fix upon shall receive the approval of the brethren who have so kindly shown up the mistakes of the accepted Washington grading. I am not sure that any thing we can patch up of an old thing will be as serviceable as something that has been made by one person and is brand-new. What think you of the first set of rules, or the one originally proposed by Dr. Miller? As for myself I am at present inclined to believe that the Washington grading as amended by Walker or Miller would be as good as any. They would have the advantage that they would be the same as the ones with which we have been familiar, without their objectionable features. Of the two, the Miller-Washington is the briefer. Let's have brief expressions on postals from a large number. The revised rules, to be of any use for this season, ought to be ready for our next issue.—ED.]

RETAILING FROM SQUARE CANS.

IS GLUCOSE A LEGITIMATE ARTICLE OF COMMERCE?

By R. McKnight.

"Selling Extracted Honey;" "Valuable Secrets." Such is the caption over an article published in GLEANINGS over the signature of Mr. Chalon Fowls, and copied into the *American Bee Journal.* Doubtless Mr. Fowls is satisfied he has discovered the secret of selling extracted honey. Let us look up for a moment what he considers these *secrets* to be. It is to be "of the finest flavor, and in color the whitest." These are certainly requisite in the rapid sale of honey. It is to be liquid in form—this is also desirable. Then it is to be put up in flint-glass jars holding a pint each, and in third-pint jelly-glasses. This is not a good way to sell *much* honey *rapidly.* At the present price of honey it is folly to put it up in any kind of package that compels one to sell it to the trade at what Mr. Fowls says he charges for it—23 cents a pint. True, the Mason jar is worth its value to the purchaser; but as a rule people won't buy honey or any other article of food because of the character or quality of the vessel that contains it. It is very necessary that this should be neat, clean, and attractive. I think bee-keepers may settle down to the conviction that, all things considered, tin vessels are the best and most economical receptacles for extracted honey when put on the market. These should be of such size as to meet the requirements of the purchaser. Few people care to buy more than 20 pounds of honey at a time, and five people will buy five pounds for one who will buy twenty pounds. For the general retail trade a 20-pound package is the largest needed. More extracted honey can be sold when put up in from five to ten pound tins than in any other form.

For some years past I have found a seven-pound square tin package the most popular with both the merchant and his customer. A few years ago they retailed readily for a dollar each. I never could understand why the orthodox 60-pound tin is so generally used to put up honey in. It certainly is not a suitable package for the retail trade.

A dozen years ago or so I was in a neighboring town. While there I called upon a grocer who happened to receive an order for two pounds of honey while I was present. He dragged a 60-pound tin of candied honey from under the counter, and through a four or five inch opening in the top he proceeded to extract the 2 lbs. of extracted honey asked for. Before he was through with the job his knuckles were daubed with honey to an extent calculated to make him forswear handling such stuff in future. I then and there made up my mind I would never send such a package to a grocer, and I never have. The best plan is to put it up in quantities of from 5 to 10 lbs. I am sure the lady who ordered the 2 lbs. I have referred to would have bought a 5-lb. package if the merchant had had it.

When liquefying honey, Mr. Fowls tells us he never allows the water surrounding the vessel containing it to boil. Can he assign any good reason for such caution? It is not wise to allow honey to boil; but honey can not be made to boil by surrounding it, or keeping it surrounded with *boiling* water. It requires a good deal higher temperature than 212° to cause honey to boil.

I should like to enter my protest against the frequency with which bee-keepers (Mr. Fowls included) refer to glucose as "vile stuff." Glucose is not vile stuff. It is a legitimate article of commerce, and its production and sale are as honorable as the production and sale of any other article of commerce when sold for what it is. We are apt to boast of the healthfulness of honey. The sugar of glucose is chemically identical with the saccharine matter of honey. It, too, ought to be healthful.

R. MCKNIGHT.

Owen Sound, Ont., Canada.

[Square cans are used very largely by producers for putting up honey in bulk, in the same way that barrels are used; but, unfortunately, some climates will not admit of the use of these latter, owing to the shrinkage of the staves. In cases where the square cans are used for retailing from, a honey-gate should be used, costing only 15 cts.; and the producer who does not supply his grocer with such a gate is very shortsighted. When a grocer daubs his knuckles as you describe, just because he has not a proper appliance, both he and his customer are liable to become disgusted with the whole business. Perhaps in many instances it would be wise to let the grocer have only 2, 5, and 10 lb. cans of honey, and perhaps he would daub his knuckles any way, for some men are always daubing.

I believe nearly all our readers will take exceptions to your last paragraph; at least, from a bee-keepers' standpoint it can hardly be regarded as orthodox. In the first place, I can not agree with you that glucose is not "vile stuff." The article that is ordinarily used for purposes of adulteration is hardly fit to put into the stomach of a pig, let alone that of a human being. A few years ago, in testing samples of glucosed honey I made myself sick, and it took me nearly a week to get over the effects of sampling the "vile stuff." It was nauseating, to say the least; and even now it brings to my mind the horribly nasty taste that clung to me for days after tasting it. I grant that there is a glucose of very fine quality that does not taste bad; but we seldom find such used as an adulterant, because the cheaper grade when put into honey looks just as well, and fools the uninitiated just as easily as the better grade.

You say, further, that glucose is a "legitmate article of commerce;" I don't know how you make that out. If glucose were not used for adulterating syrups and honeys it is doubtful if there would be a glucose-factory on the continent. It is true, glucose is sold in bulk for what it is; but to whom, pray, does it go? To the mixers, who will put it into syrups and honey, cover up its identity, and who will name it either "pure maple syrup" from Vermont or Ohio, or "pure farm honey," etc. If glucose is to be ranked as an honest product in the sense that honey, flour, and meat are, why do we never see it advertised in the general run of papers? In common market quotations it is never mentioned. Is not this fact alone enough to convince any one that this stuff goes directly from the factories into the vats of those who mix it with the product of honest labor to rob the farmer to just the same extent they enrich themselves? Did you ever hear a grocer recommend an article because it contained glucose? Does he not always carefully conceal that fact if he can? It signifies nothing to say that it is a legitimate article of commerce. So are whisky and opium, but surely in this case the altar does not sanctify the gift.

I have been told that glucose has been used to preserve dead bodies; that, when immersed in the "vile stuff," said bodies will keep indefinitely. There are other "vile stuffs," such as alcohol, etc., that have the same property. But alcohol has a few legitimate uses; but glucose, beyond the possible one mentioned, is used first, last, and all the time for cheating and defrauding, unless when it is used for making beer or spirituous liquors.

I will grant that the sugar of glucose is chemically identical with the saccharine matter of honey. Chemically the diamonds in the British crown are identical in substance with charcoal.—ED.]

BEE BUZZINGS.

EXTRACTING.

By E. H. Schaeffle.

I prefer to take off honey very early in the morning. Over night the honey has all been evaporated, and there is then no thin honey requiring after-evaporation, or souring for the want of it; the bees are not flying, and so do not become excited. During the day the combs are all extracted, and returned late in the evening, thus preventing robbing as the combs are all cleaned up over night, and do not attract the robbers on the following day. As a rule I leave an unfinished comb in the super for the bees to store in during the day's absence of the other combs.

EXTRACTOR.

I use a Cowan, and should like it still better if there were a groove in the bottom, where the gate enters the can, so that all of the honey would drain out with the can standing level. Frequently a black mixture of iron and honey oozes out of the bottom bearing, and is a nuisance to scoop out of the honey. This, I think, could be remedied by reversing the position of the bottom pin and bearing, and using ball bearings placed *above* the honey. As the extractor is now built, if five gallons is allowed to accumulate, the honey works into and the iron out of the bearing, and trouble follows. It is not possible to oil the lower bearing; but with ball bearings this would not be required. The machine would run far easier, and, with a more rapid gear, make extracting less laborious. With the present slow gear the operator must, if the honey is as heavy as that which I am extracting, run at his utmost speed. I do not find it necessary to evaporate my honey after extracting, as I allow the bees to do that for me. While I may not secure quite as large a crop in consequence, I am satisfied it is enough better to offset the loss. I find a light block and tackle a great convenience in extracting. With it I can pick up the extractor, when full, place it on a table, strain out the honey, and drop the extractor back on to the floor, without any special effort.

FEEDING.

In a recent number of GLEANINGS a subscriber advised the use of honey only in feeding. Recently there has been a pure-food crusade in San Francisco. One of the city's leading grocers was arrested, fined, and greatly injured in trade by an analysis showing the honey he sold to contain a small per cent of cane sugar. Now, this grocer, to be sure of the purity of the honey he sold, bought direct from an apiary whose owner guaranteed the purity of the honey under a penalty of $150; but the chemist said "cane sugar," and the grocer suffered; the bee-keeper lost a good customer (yours truly got him). I feed only pure honey, and fear no honest analysis.

It is evident that the bee-keeper had fed sugar syrup in the fall or spring feeding, and the bees, when crowded, had extracted a portion of it to make room for the queen, and carried it up into the super, where it was thrown out with the other honey, and while the per cent must have been exceedingly small, the chemist found it in his test, and the fines and losses followed.

HONEY YIELD.

February, March, and a portion of April was an almost continuous shower, with an unusual amount of bloom in April, and one of the best spring flows that the State has ever produced. Since then it has turned hot and dry, with the result that reports from all parts of the State agree that the flowers are withered and gone, and the remainder of the season will be very light, and in some sections feeding will be required to carry the bees over to the fall flow. This in most sections is barely sufficient to furnish the bees with a good supply of winter stores. With me it varies. Some seasons my fall flow is better than that of the spring; as a rule, however, it is only fair.

PRICES.

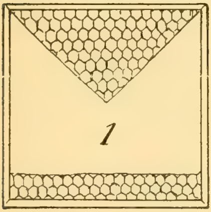
The dealers write me that I must be mistaken about the yield, as the bee-men, jobbers, and country storekeepers are all trying to force their honey on to them in large amounts. This, I think, is the result of the past short seasons. The bee-keeper is hard up, and hastens to realize, fearing a drop in price, with the result that the price is forced down, notwithstanding the crop is small; and now that glucose is barred out, the consumption is double that of former seasons.

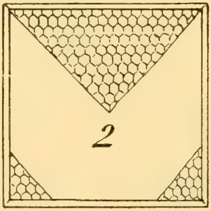
TAKING OFF SECTIONS.

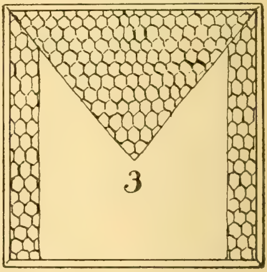
Smoke excites the bees, and causes them to uncap the honey, as does any rough handling. I find the following method works nicely: Early in the morning pry up the super containing the sections, doing it as gently as possible; move along to the next hive; and when you have three or four loose, go back to the first hive, where the bees have quieted down, and quickly raise the comb super; slip on the bee-escape board, and replace the super. The bees are slow to move early in the morning; and if care is taken in prying up the super, giving them time to quiet down, and skill used in slipping on the escape, the bees will not become excited, no caps will be cut, and the bees will work out as nicely as though they had been driven wild with smoke, and remain gentle.

PRIMING SECTIONS.

By reference to old articles of mine I think you will find that I used both a bottom and lower corner starter. With me the bottom starter had a bad habit of curling over. The corner starter seemed to work for a time, but in the end I found there were more of them gnawed out by the bees than there were left standing, so I left both bottom and corner starters out. At present I use a strip down both sides, and a triangular piece in the center.







BEE-SMOKER.

I found my Crane smoker had a bad habit of being out just when I needed it badly. To remedy this I punched a ¾-inch hole in the front, just above the floor, and covered this with a piece of finely punctured tin. Now when I get the smoker going it keeps a going. For convenience in handling I have a strap nailed across the top, with sufficient room under it to slip the hand in. I find the strap comes in very nicely in going to and fro in the apiary after combs when extracting, as with it I can hang it on to the handle of the barrow, and it always keeps right side up. The body of the bellows should be of tin to make it lighter. Smokers are unnecessarily heavy. A steel fire-box and a perforated cover are all that is required, which, with a tin bellows, would decrease the weight a half.

Murphy's, Cal.

[We formerly made extractors with the groove in the bottom where the gate enters the can. After we changed to our present plan we found that it is not only cheaper, but bee-keepers appreciate it. The directions that go with the machine are to screw it down so the honey-gate will be directly over the bunghole of the barrel or other receptacle. It is not designed to let the honey accumulate in the can. When that is desired we make deeper cans and raise the bearing up a few inches. Of course, we have to charge extra for such change. The great difficulty with the old grooved bottom was in cleaning. With the present plain bottom slanting toward the honey-gate, every portion of it is "getatable."

The Crane smoker will not go out, usually, if you get it well going in the first place, and use the right kind of fuel. The Corneil, however, seems to have the preference nowadays; and while it does not give as strong a blast it will never go out as long as there is fuel to burn and of the right sort. We prefer the stringy sawdust that comes from making the hand-holes in hives. Planer-shavings answer nearly as well. Small sticks of stovewood we have used some, but very much prefer the loose material, as it gives a denser smoke.—ED.]

THE NEW DRAWN FOUNDATION IN ENGLAND.

APIS DORSATA, BY ONE WHO HAS SEEN THEM IN THEIR NATIVE HOME.

By F. W. L. Sladen.

Mr. Root:—I am in receipt of your letters of May 1st and 17th. The sample package of foundation, containing a small piece of the new drawn comb, also came safely to hand. With regard to the drawn comb, I congratulate you on your marvelous achievement, which must ever stand out in bee-history as a record of advance. I think the new drawn comb will prove particularly useful in the rapid harvesting of honey, and also for the prevention of "pop-holes," which are frequently nibbled through foundation, next the wood, in frames and sections. The use of the new drawn foundation will make the adulteration of comb honey hardly any easier than in the past. It is always possible for unscrupulous persons to get the bees to fill their combs with syrup, whether drawn comb, ordinary foundation, or no starter at all be given.

I am pleased to see in GLEANINGS that you are taking practical steps to sift the *Apis dorsata* mystery, and wish you every success. As, perhaps, you know, I took a voyage to India last winter for health, and spent a month there taking specimens and getting information about the various types of bees to be found in the country, especially of the genus *Apis*. I set out with the firm belief that any of the Indian honey-bees, to be of any value to us, in our climate at least, should come from the mountains and not from the plains; and after my month's tour I felt more than ever convinced of this. Now, *A. dorsata* is essentially a plain bee, though I did meet with a deserted comb at 2000 ft. elevation on the southern slopes of the Himalayas; and I am almost afraid that you will make nothing of it—at least in honey-producing. If properly managed in the Southern States it might give wax, but I doubt if you could make Weed foundation of quality as at present with *dorsata* wax. I met with *A. dorsata* fairly commonly in a ramble taken at Siligari at the foot of the Himalayas. The sky was cloudless, the air still, and the thermometer stood at 75° in the shade (this in January), but *A. dorsata* did not see fit to appear for more than three hours in the day; viz., from 10 A.M. to 1 P.M.

My heart sank at first sight of a *dorsata* worker on the wing. With its heavy, dusky wings it emits a low-pitched hum, indicating the slowness of vibration. It goes from flower to flower in a lazy, unsystematic way, frequently pausing for rest on a prominent leaf, forcibly calling to mind Cheshire's interesting illustrations of the comparative feebleness of large creatures. To say that *A. dorsata* bears the same similarity in behavior and appearance to an ordinary honey-bee that a hornet does to a wasp would give a very good idea to an observant Englishman of the "nature of the beast."

I made a dissection of two of *A. dorsata* on my return, and the following figures may be of interest to you. I have had to suspend all this kind of work for the present until the winter.

	L'gth of body.	Approx. l'gth of tongues (ligula).
A. dorsata (from Siligari)	15 m. m.	4 m. m.
A. mellifica (England)	12.5 m. m.	3.6 m. m.
A. florea (Calcutta)	7.8 m. m.	1 m. m.
Bombus hortorum (England), worker	15 m. m.	9 m. m.

I brought a case of specimens of wild bees back, many of them of exceedingly interesting structure, which I have not time to enter into here. I have a large collection of wild bees from many parts of the world. If you know of any one in the Northern States who takes an interest in these things would it be too much to ask you, when communicating with him, to give him my name and address, as I should be pleased to make exchanges? I have a correspondent in New Mexico, and several in Canada, but none at present in the Northern States.

Ripple Court, England, June 8.

[This is very interesting and valuable, especially the comparative measurements of *Apis dorsata* and other bees. It would appear from the foregoing that their tongues are but little longer than those of the common bees, while the tongue of the bumble-bee is more than twice as long as that of the so-called giant bees. The claim has been made that these bees would be especially valuable in this country, for the reason that they could get honey from red clover and other flora having deep flowerets; that they would be able to do for us in the way of fertilization what the bumble-bee does, and more. If the comparative measurements of bees' tongues are correct the claim is rather flimsy. We should be glad to hear from Mr. Sladin further on the subject.

After the article above was in type, the following, from our old friend and correspondent, A. Bunker, the one who has written in years gone by, on the subject of *Apis dorsata*, and who has been living right in their native climate for a good many years, is especially opportune and valuable:

My dear Friend and Bro. Root:—Once more, after four years' absence on the Burman field of missions, I am permitted to greet my family. I find a large place empty by the death of my boy while away. God has, however, given me many spiritual children to make me glad. We baptized 457 converts during the last two years; added over 1600 to the attendance at our Sunday-school, and organized five churches during the last year. Praise the Holy Spirit, who gives the increase.

I see considerable speculation about *Apis dorsata* in your journal. Having studied that bee in its native habitat I am afraid it can not be domesticated more than it has been. It is a migratory bee. During the dry season it travels south, and takes up its home, usually in the same place, from year to year, among great flowering trees. As the rains come on, it leaves for the North, and I have found its home in high mountainous tracts, where the natives plant stakes in the side of a hill horizontally, digging a ditch under them, and leaning a few boughs against the stake for protection.

The amount of honey gathered by this bee always seemed to me to be small when compared with that gathered by other bees, and taking into consideration the size and numbers of the bees. It is possible their habits can be changed, but I doubt it. If any one wants to study them for himself tell such a person to go to Tongoo, Burma; get a camping-out kit, and go back into the forest 20 miles to the east of that city, in December, and he will find many swarms for study; or, if he will apply to the missionaries at Toungoo he will get guides who will take him to the bees, and secure swarms for him if he wishes them to do so.

Bro. Root, I prize your Home Papers very highly. They are practical; and religion, if not practical, i.e., reduced to practice, is not worth much. Long live GLEANINGS. Its editor, A. I. Root, *will* live *forever*, because Jesus lives. A. BUNKER.

54 Willow St., Providence, R. I., June 24.

[I believe there is no one in the world who is more competent to speak on the subject of the general characteristics and habits of *Apis dorsata* than is Mr. Bunker. Both he and Mr. Sladen, as well as others, express strong doubt that these bees can ever be domesticated. It is claimed they could be, and be kept in common hives in this country. It *looks* as if this claim were made in the interest of a fat government job for some one; and if so, bee-keepers all over the land should enter a most decided protest against the use of public funds for this purpose. The missionaries already in or about to be in the field, Mr. A. Bunker and Mr. W. E. Rambo, can conduct experiments, and, if necessary, ship the bees to this country, at a merely nominal cost—a cost so low, in fact, that the expense can be borne easily by private enterprise.

We had lost sight of Mr. Bunker; and had I known where I could have written him I would have asked his opinion long ere this. Now that we have got hold of him again, we shall hope for his advice and co-operation, in connection with the proposed efforts on the part of Mr. Rambo, in securing these bees.

I am sure our readers will deeply sympathize with Mr. Bunker in the loss of his son. At the same time, we shall also rejoice over the grand and noble work that he has done through Christ. The self-sacrificing work of such a missionary leaving home, family, and friends, to carry the gospel to heathen lands, to express it mildly, commands our admiration. Could any work be more noble and unselfish?—ED.]

THE MONGOOSE IN JAMAICA; WOULD THE IMPORTATION OF APIS DORSATA BRING DIRE RESULTS?

I send you a clipping from the *American Field*, in reference to the mongoose in Jamaica. I fear *Apis dorsata* might prove to be a similar curse to bee-keepers in this country. I for one am satisfied with Italians.

The introduction of the mongoose into Jamaica marks one of the standard instances of unexpected results following upon an attempt to artificialize the process of natural selection, and takes rank as a warning with the plague of rabbits and thistles in Australia, says the Academy. The mongoose was introduced from India, in 1872, in order to abate the pest of rats which infested the sugar-canes; and after performing this salutary duty it increased and multiplied to such an extent that not only the rats and mice but most of the living species of the island were threatened with extinction. Poultry suffered first; but the depredations extended to young pigs, kids, lambs, newly dropped calves, puppies, and kittens. Game of all kinds was attacked, both living and in the egg. The marauder ate even fish, and made such a specialty of snakes, ground-lizards, frogs, turtles, and land crabs, that many kinds of these entirely disappeared. Finally the mongoose developed a ravenous desire for bananas, pineapples, young corn, avocado pears, cocoas, yams, and the sugar-canes, which it had been called in to protect, winding up its tastes with an appetite for salt meat. The result was a wholesale disappearance of species. A few birds, like the ground-dove, had the sense to shift their breeding-places to the tops of the prickly cacti, where they were safe; but other animals, and the reptiles in particular, suffered so severely that many kinds were believed for years to be extinct. As a consequence there arose yet another plague. Insects like the ticks and "jiggers" (or chigors), which used to be kept down by the snakes, increased so overpoweringly that men and cattle were grievously infested. One could not walk without being covered with them. The victory over the island remained with the tick and the mongoose, until, within the past year or two, a fresh stage set in. The mongoose suddenly began to be less plentiful, and it was found that he had fallen victim to the tick. The results of the diminution are shown in a gradual reappearance of other beasts, birds, and reptiles. Among the snakes there is a very marked increase; and even the ground-lizard, supposed to be quite extinct, has become common again. The balance of life has begun to reassert itself, and naturalists will watch with curiosity for a complete reinstatement of the previous fauna. The renewed depredations of rats are hailed as an advent of salvation, and, odd as it may sound, the increase in numbers of the crocodile is taken as a happy omen. The Jamaicans are not likely to make further experiments in this interesting domain of natural history, but will adhere in future to such present evils as they have. For them, at any rate, it has been no "imaginary mongoose."

Chambers, Ala., May 24. J. M. CUTTS.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

CLIPPING QUEENS' WINGS.

Question.—Do you believe in clipping queens' wings? If you do, will you tell us in GLEANINGS all about it—how you clip, why you clip, etc.? I am told by a neighbor that it is too much bother to hunt up the queen, and that it is a delicate job to clip her wings when she is found, and that there is more harm than good in doing it, anyway. Is this neighbor right?

Answer.—While there may be a grain of truth in what your neighbor tells you, yet when we come to "count noses" the greatest weight of evidence from the "dollar and cent" apiarists of our country is in favor of clipping queens' wings; and as I believe in so doing I will give some of the reasons for such a belief.

By having the wings of all queens clipped you have the bees perfectly under your control, and can handle them as you wish, separating them with pleasure when two or more swarms cluster together, and hive them without climbing trees, etc., on the returning plan, when they come singly, they virtually hiving themselves. In using this plan all you have to do when the swarm issues is to step to the entrance of the hive with a little wire-cloth cage into which the queen is let run, when the cage is stopped and laid in some convenient place. The old hive is now moved to a new stand, and a hive fitted for a new colony set in its place. In from a few minutes to half an hour the bees miss their queen and come back to her or their supposed old home, which was there when they went out. On changing hives the queen was placed near the entrance, so that, as soon as the bees returned, they might find her, and not scatter about the apiary to other hives, as they sometimes will if they do do not have ready access to their queen. As they return they will commence to run into the new hive with fanning wings, when the queen is liberated and goes in with them. I have followed this plan for more than a quarter of a century, and know it to be a good one, as good yields of honey will testify—no climbing of trees, cutting off limbs, or lugging a cumbersome basket or swarming-box about. It is straightforward—remove the old hive to a new stand, put the new hive in its place, and the returning swarms hive themselves with little or no trouble, save the releasing of the queen.

Again, I clip the larger part of the queen's wing off, so that she may be the more readily found. In making nuclei, changing frames of brood and bees, extracting, making swarms artificially, if we wish, etc., if you find the queen you can always know that she is just where she belongs, and not in some place where she ought not to be. By having her wings cut short you can see her golden abdomen as soon as your eyes strike the side of the comb she is on.

Once more: There is no loss of bees by going to the woods when the queen's wings are clipped. That bees do go to the woods, all can assure themselves by reading the reports given in our various bee-papers, if they do not know of the same by actual experience. The bees may try for the woods, and they often do; but as soon as they miss their queen, back they come, for they realize that swarming is of no purpose to them unless they have a queen with them to repopulate their home after *they* die of old age. Many a time have I had swarms start for the woods and be gone from sight and hearing for some little time; but as soon as they missed their mother, back they would come, setting up a joyful hum when they found her.

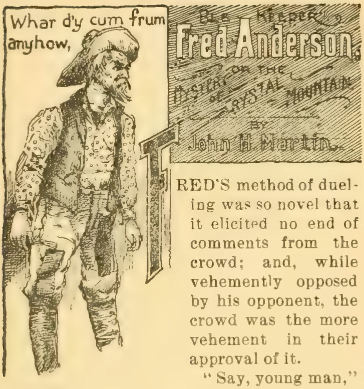
But how to find the queen, and how clip her wing, is something we must know about if we practice this method. The time of the year in which we undertake this matter has much to do with the pleasure of this work. If we wait till just as swarming is upon us, and attempt to hunt up a queen in a hive that is overflowing with bees, and especially one which will probably swarm in a day or two, when the queen has ceased her laying pretty much, so that a burden of eggs need not hinder her from flying with the swarm, and thus cause her to become no larger than she was when unfertile, we shall well speak of the matter as "a bother;" for to find a queen under such circumstances often baffles the most experienced apiarist. But if we do this work in fruit-bloom, when there are comparatively few bees for the brood they are covering, and the queen very large from her prolific egg-laying, using the time from 9 A. M. to 3 P. M. to look for queens, it will be a rare thing that one will evade the efforts of even the novice. Take along an empty hive and set it where you can easily place the combs, as handled, into it, when you will proceed to open the hive, using just as little smoke as possible—only just enough (or none at all) so that the bees are kept from stinging. Do the work carefully, so as not to jar the hive or frighten the bees. Carefully lift the first frame; and as it comes from the hive, glance at it to see if there is brood in it, for it is useless to look on combs having no brood in them if you have not stampeded the queen by careless operations.

As soon as you find brood, look closely for the queen, glancing first down the side of the comb next to you in the hive, and then on the opposite side of the one you hold in your hand, holding the comb a little obliquely as you look, for the side of the queen gives a better view than straight on her back. As the combs are taken from their hive, set them in the one you brought, so that, should you not find her the first time over, you will be likely to do so in setting them back. In this way, after a little practice, you will have little or no trouble in finding any queen, even should it be a black or German queen. Having found her I take her by the wings with the thumb and forefinger of my left hand, when, with my right, I place the sharp blade of my jack-knife on the part of the wings I hold in my left, lowering both hands to within an inch or so of the tops of the frames, when I draw the blade just a little, thus severing the wings, when the queen runs down into the hive the same as if nothing had happened. There is no danger of cutting fingers if you stop drawing the knife as soon as the queen falls. Some use scissors; but after clipping off a leg or two with them I took to the plan here given.

J. R. W., Ill.—Drones from pure Italian queens vary all the way from black to quite yellow, while the bees should be uniformly marked, having three distinct yellow bands. The fact that drones from a yellow queen do not show any bands whatever is no evidence that the queen is not pure. It is also true that queens vary just as much as the drones in color. See paragraph on this subject on page 29 of our catalog.

CONVENTION NOTICE.

The Texas Bee-keepers' Association will meet at Cameron, July 16, 17. All parties will purchase one-way ticket, paying full fare, take receipt at time ticket is sold, and these receipts, after having been signed by the secretary at Cameron, and stamped by agent, will authorize return tickets at one-third fare, provided there are fifty certificates presented.


Whar d'y cum frum anyhow,
Bee-Keeper
Fred Anderson,
or the
Mystery of the Crystal Mountain
By
John H. Martin.

FRED'S method of dueling was so novel that it elicited no end of comments from the crowd; and, while vehemently opposed by his opponent, the crowd was the more vehement in their approval of it.

"Say, young man," said Slim Jim, "whar d'y come from, anyway?"

"I came from Maine," replied Fred.

"Jest as I mustrusted," said Jim; "fur nobody but an infernal Yankee'd ever think of sech a way of fitin' as that. My way is pistils, and it's pistils or nothing."

"I don't see that there is any difference as to how we fight, if it is only with deadly weapons," said Fred; "and I'll guarantee that the bees are as dead shots as any pistol you can produce."

"Yes," said Jim, "they may be deadly to me, but how's it to you? You mout be one of them fellers that bees won't sting."

"Well, then," said Fred, "I would have about the same advantage that you would with a gun. You are a dead shot, and I am not. I had a right to choose my weapon, and will fight with no other; am I right, gentlemen?" said Fred, turning to the crowd.

"Right! right!" assented the crowd.

Fred knew that, in drumming bees from a hive, they would fill themselves with honey, and be comparatively harmless, and could be thrown promiscuously into a crowd, and no stings result. But to those ignorant of the traits of the bee, the idea was full of terror; and Slim Jim's view of it was of the nature of a lingering death.

Fred was thoroughly opposed to dueling in every form; and in making his proposition he sought to make as much of a burlesque of it as possible, and was happy over his success; for after much talk, Slim Jim, after many imprecations against the "onusual ways of the infernal Yankees," made an ignominious withdrawal.

With Slim Jim out of the way, young Armstrong directed his attention to Dr. Hayden. The doctor told the story of the valley, his finding of it through the Indians, etc.; and when he had concluded, he said, "Now, if you doubt my word, here are my companions. Ask them."

Sam Johnson, in giving his experience in the valley, dwelt more upon what Dr. Hayden had done for him morally than he did upon a description of the valley, and concluded by saying, "Dr. Hayden am elevated me from de mire ob de dirty slough to de beautiful heabenly gardens; and though de beautiful valley am gone, de heabenly gardens remain in my soul, glory hallelulia!"

Fred interested the crowd with a description of his first acquaintance with the doctor, and of his wonderful success with bees in the valley.

"Well, now, by snumm," said one of the crowd; "that explains a mystery. I've hunted bees all around Crystal Mountain, and the lines always led me right into them glass knives. I calculated there was a big cave in there somewhere; but instead there was a whole valley, and who'd a thought it?"

Gimp Dawson gave some of his experiences with Sam Johnson, and said:

"When I was fust pitched inter the valley I hated that ar' nigger," pointing to Sam; "but afore I came out I come to conclude that, though he's black, thar are some white streaks in his heart. D'ye see that ar' scar on my hand, and that on my shin" (pulling up his trousers)? "then thar is another on my hip—got cut on them glass knives. Wall, Sam done 'em up like a horsepital man, and on the hull we had a happy time, as Sam says, in de heabenly valley."

When Alfaretta told her story there was a visible effect upon the crowd. Many had heard of and a few had seen the "mad beauty" of the Sacramento; and now to have her in their midst, sane, and talking to them so pleasantly, was too much for them, and they broke, from murmurs from one to another, into a hearty cheer, and the cheer was as pointed for Dr. Hayden as for Alfaretta.

"Well, Dr. Hayden," said Pete Armstrong, "we had an impression that you were an evil genius, and an all-round bad man. Now, there is such a man and a murderer somewhere around that mountain. My father was shot in cold blood; that Dutchman Kishinka was also killed, and no telling how many men have been driven from the vicinity by burning of cabins or killing of stock."

"But why should *I* do such things," said the doctor, "while living peacefully inside the valley? No one was injuring me, and I am not a vicious man, as you have now learned. As to who has committed these crimes, I have nothing to say; but if you look sharp you may now find some one outside the valley who is interested in running people off a certain tract of land."

There was considerable quiet thought over the matter, and finally Pete Armstrong said, half to himself, "If I only knew!—but, wait; there is an Irishman squatting on a parcel of land on the west end. We will see what becomes of him."

It was well into the evening before the conference ended; and that which started out with a prospect for a duel ended in a general peaceful hand-shake, and our party of homeless valley exiles were cared for in the combined grocery store, hotel, and saloon.

Late in the evening parties came in from Ukiah, and brought news of a startling nature about the earthquake. The State Capitol building at Sacramento had been demolished, and at Napa and Winters there had been a general wreckage of buildings and loss of life.

"Of course," said the doctor, "these are but rumors, and the damage can scarcely be expected to be as extensive as reported."

The next morning the party proceeded leisurely on their journey, and followed the old trail over the mountains toward the Sacramento River.

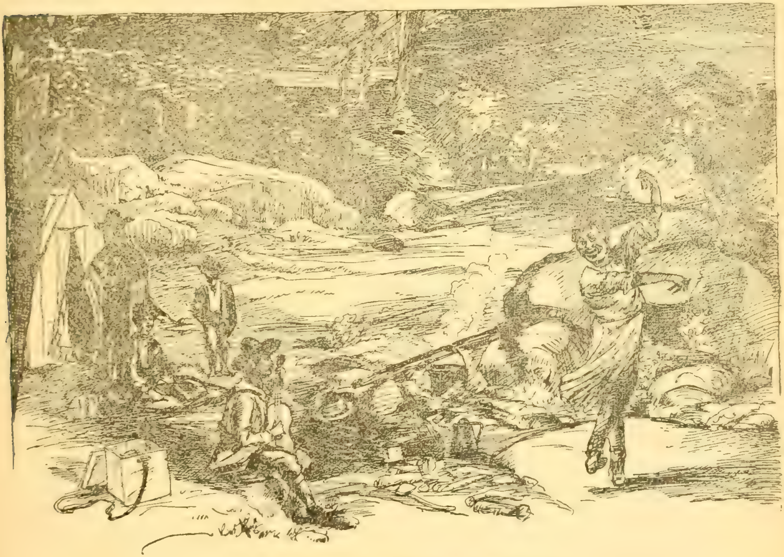
It was a constant cause of wonder to Alfaretta as to how she could have traversed those regions alone and in the night.

"Why," said she, "I should be afraid to travel this road alone in the daytime; but pony Jack, you say, was my guide and guardian. Dear Jack!" said she, patting the pony on the neck.

During the forenoon, as they rode along, the doctor conversed with Alfaretta much about his early life and schooldays with Clarence Bull; "and now," said he, "it seems strange to know of him as Buell."

"But, doctor," said Alfaretta, "do you not think Buell much the prettier name? and only one little letter makes the change."

"Oh, yes!" replied the doctor; "it does sound pretty, but not so strong. Bull has an aggressive sound; and when you change it to Buell you sort o' knock the horns off, and make a muley of it; but, I beg your pardon for my blunt speech," said the doctor, as he observed a trace of a pout on the fair lips. "I will try to conform to the new order of names. It is very handy to address you as Miss Buell; but should I see my old friend I fear I should say Bull to him unawares."



"A VERITABLE CONCERT WAS ENJOYED."

"Well, doctor," said Alfaretta, with a smile, "my papa is good-natured, and you shall have that privilege. I anticipate the great pleasure it will afford him to meet you."

After the noonday lunch the doctor relapsed into silence, and rode some distance in the rear. Fred never enjoyed himself better than during that afternoon ride. Their pace was not rapid, for the ponies packed with the camp material could travel no faster than a walk. The homeward journey was a happy one for Alfaretta, and as much so for Fred, for he felt as though he had been in some degree instrumental in restoring his fair companion to health again, and he knew there would now be joy in the Buell home where there had been sadness before. Their exuberance of spirits found expression in snatches of song; and around the campfire that night a veritable concert was enjoyed, Sam contributing an important element to it with his plantation songs.

The next day, in his conversation with Alfaretta, the doctor dwelt much upon filial love, and said:

"Alfaretta, I suppose that, after your recovery now, you feel the same love for your parents as before."

"Love them!" said Alfaretta. "Ah, doctor! It seems that I should love them more and more. Dear mamma and papa, always so tender, so kind, and the agony they must have endured these five long years!" and she brushed away a tear.

Again the doctor rode a long time in the rear. He called Sam to his side, and their conversation was earnest and long. That evening the doctor was quite jovial, furnishing his quota of entertainment with reminiscences of his South American travels.

When Alfaretta retired to the little tent and cot provided for her, the doctor took her by the hand and bade her good-night.

For a long time Dr. Hayden sat gazing into the campfire. Fred addressed him a couple of times, but he seemed as abstracted as when Alfaretta first entered the valley. Fred, realizing his mood, rolled himself in his blanket and was soon sound asleep.

It was past midnight when Fred was aroused by a gentle shake. Upon opening his eyes Sam Johnson was kneeling beside him. In an undertone he said, "Fred, de doctor wants to see you jess beyond de sycamore-trees yonder. I guess he have suffin' to say to you."

By ER Root
Editorial

LOOK out for irresponsible or new commission houses. They will offer big inducements and talk big about their ratings. They are still abroad in the land, and are waiting to rope *you* in if they can.

IT is reported that the glucose-factories have formed a trust aggregating two millions of dollars. We bee-keepers hope this trust will put the price of the stuff up so high that it will not pay to use it in honey. Sometimes a trust is a good thing. Perhaps this will be an example.

THE convention of bee-keepers which is to be held in Buffalo, Aug. 24–26, will be a big one, from present prospects. The unusually heavy flow from clover throughout the country, and the very low rates of travel (one cent a mile) are two of the elements that will contribute to make the next meeting of the United States Bee-keepers' Union a grand success. Plan to go if you possibly can.

THE following clipping was sent to us by some unknown person. It is a gratifying piece of legislation, and we hope it will be contagious in our different legislatures until they all "catch" it as severely as the law-makers in Vermont did. It is just what we need:

> One of the shortest laws we have seen is the following, which was passed by the last Vermont legislature, and approved Nov. 20, 1896:
>
> SECTION 1. If a person sprays or causes to be sprayed, or puts or causes to be put, any Paris green, London purple, or other poisonous substance upon fruit-trees while in blossom, he shall be fined not more than $40 and not less than $10.
>
> SEC. 2. This act shall take effect from its passage.
>
> This law was passed at the request of the Vermont Bee-keepers' Association, which asserted that honey-bees may be poisoned by visiting trees that are sprayed when in bloom. This assertion is, doubtless, correct; and since it is not necessary to spray fruit-trees when in bloom, this law will not prove injurious to fruit-growers. The best advice now is to spray after the blossoms fall, since we can then do most injury to the insects.

This goes to show that State and National associations will be heard if only the right methods are employed.

JUDGING from present prospects it looks as if there were going to be an enormous crop of honey from white clover. The tendency on the part of a good many will be to rush their honey off to the cities, and, of course, this will make a glut on the market. Bee-keepers ought to make every effort possible to dispose of their honey around home. Create a home demand. Make it as attractive as possible, and help the grocers to sell for you. In the next issue I will tell you about how to draw a crowd around a grocery window. I would tell you now; but the boss printer says, "No more room."

OUR BASSWOOD OUT-YARD.

IT has been a very noticeable fact, during the white-clover year, that our home-yard has been much overstocked. During those seasons when we have a flow from basswood, the difference is very much less. Notwithstanding there is only a couple of trees in our whole orchard that has any buds on it, it seemed wise to "relieve the pressure" in the home yard by removing some of our best colonies there. The wisdom of this move was almost instantly apparent. Those same colonies at the home yard were gathering honey very slowly; but almost on the first day in the new location they began to pile in the honey. In four days they almost completely filled full-sized eight-frame sets of extracting-combs. At the rate they were storing at the home yard it would have taken them almost two weeks. As the pressure does not yet seem to be "relieved" in our main apiary, we expect to take down another lot of colonies.

The home yard is located on one side (west side) of the town, and as the town is a mile wide and long the bees have no pasturage except on the west side. Then besides there are something like 150 colonies.

OFF TO CALIFORNIA.

"TIME and tide wait for no man," and the time to start for the Christian Endeavor convention at San Francisco has come. Business at the Home of the Honey-bees is still booming, and it is necessary to continue running our factory day and night to keep pace with the orders which come by wire as well as by mail. Usually business has slacked up so much by this time of year that there is opportunity for vacations. Most of them will have to be deferred a little this season. The San Francisco convention can not be deferred, and, having made my plans to go, I am off, feeling sure that the wants of our many friends will be carefully and promptly looked after by the many faithful helpers left behind.

I expect to be in Salt Lake City July 3d to 5th; Reno, Nev., 5th; San Francisco, care of Mechanics' Pavillion, July 7th to 14th; Los Angeles, care John H. Martin, box 152, from 15th to 19th; and, unless I change my plans, I shall be back to Medina by July 24th. I hope, in later issues, to tell something of my trip, and may also bring you some views, as I take along a Kodak with me. J. T. CALVERT.

BETTER PURE-FOOD LAWS.

A SHORT time ago I indorsed the suggestion, made by some of the members of the new Union, that its first work, as soon as its funds should be available, should be to work for the passage of pure-food laws in every State in the Union where such laws were needed. I suggested that, in the city of Chicago, where adulteration is practiced more extensively than in any other city (for the reason that the State lacked a good pure-food law), the Union begin its work in Illinois first; and that C. P. Dadant and James A. Stone should be the men to buttonhole the members of the Illinois Legislature. In referring to this in the *American Bee Journal*, Mr. Dadant says:

> Mr. Root has evidently more faith in my capacity as a lobbyist than I have myself, for I would make a sorry politician.
>
> But, let me ask, Is it really necessary to have more laws than we now have to prevent the sale of glucose under the label of honey? Can a man sell you salt for sugar, or dust for pepper, garlic for onions, or silver for gold, with impunity? If so, we are not a civilized race, and all the vaunts of the so-called progressive men are empty bubbles.
>
> I am not a lawyer, and perhaps my reasoning goes astray; but, in my opinion, we need less laws than action.

I have no doubt that, if such laws as are already on the statute-books were rigidly enforced, the adulteration evil would be largely curtailed. But I understand the laws in Illinois are not as strong as they might be, or at least have been so garbled, or amended in the interest of the adulterators of food, that they are practically a dead letter, and that this is the reason why adulteration in Chicago is much more rife than in New York, where there are better laws. In Cleveland, for instance, it is very risky business to handle adulterated honey, or, in fact, in any city in Ohio, *because* we have good pure-food laws and an energetic food commissioner. The daily papers have contained accounts of the good work already done.

Let there be an equally good law enacted in Illinois, and efficient officers appointed to see that such laws are enforced, and the adulteration evil will begin to wane at once, just as it has done recently in California. In this latter State, you will remember that the effect of the pure-food law was almost instantaneous. I do not believe it is so much the *lack* of action as it is the *lack of good laws* to make an action, when begun, *result in something*. An action backed by a weak law seldom amounts to any thing.

I have every confidence in Mr. Dadant's capacity. The henchmen of the food-adulterators have done so much lobbying that it is time, or will be, when the new Union has funds to back it, to do some lobbying too.

CANE SUGAR IN HONEY.

THE following letter received from Mr. W. A. Selser, an expert analyzer of honey, will explain itself:

> *Mr. E. R. Root:*—In your issue for June 15, page 457, you make a statement that is not correct; and, knowing you are misinformed, I want to set you right. As you may know, I have taken a special course in analytical chemistry, in its bearing on honey; in other words, I consider myself a honey specialist. When honey shows 10 per cent of adulteration with cane sugar, it does show downrigh rascality, and proves the adulteration by mans's agency of 10 per cent with cane sugar. I consider a man a rascal if he steals 10 cents from my pocket or 75 cents. I see no difference, except that the 10 cents won't do him much good, neither will honey adulterated with 10 per cent of cane sugar. I can explain just where this mistake occurs. It is in mixing up chemical and commerical terms. Pure honey (or nectar either) does not contain any cane sugar commercially speaking; that is, there is no sugar of any kind, as sold in the market, that is found in pure honey; but there is a very large percentage of sucrose, and sucrose is a chemical term for cane sugar, but it is not the cane sugar of commerce, under any circumstances. If you ask a chemist what sucrose is he will tell you cane sugar, but also tell you, not as you understand cane sugar of commerce, and has not the same chemical properties by any means. I am very sorry that another chemical word has ever been adopted to distinguish the difference.
>
> I have been doing some expert work on honey adulterations for parties in comparison with general chemists, and my analysis has proven the most satisfactory. We also find a large percentage of what chemically is called reducing sugar in pure honey. This is another purely chemical term. Kindly correct your item and let the bee world understand that there is not one per cent of cane or

common sugar in pure honey. In this statement I defy contradiction. **WM. A. SELSER.**

Wyncote, Pa., June 22.

In referring to Wiley as authority for the statements I made on page 457, I had reference to a special bulletin on the subject of honey and syrup adulterations that was issued in 1892. The chief chemist, in speaking of the properties of pure honey, says: "The amount of cane sugar varies from nothing to eight to ten per cent, according to quantity of cane sugar in the nectar, and the extent of inversion to which it is subjected in passing the organism of the bee." In September of the same year, in GLEANINGS, page 688, Prof. Cook speaks of the difficulty of detecting cane-syrup adulterations, especially if they have passed the organism of the bee.

It may be, as Mr. Selser points out, there is a confusion in terms, and that the cane sugar of the market is different from that referred to by the chemist. The point that I made, however, still holds good — that, if one is dishonest enough to adulterate at all, he will not stop at 10 or 15 per cent, but will put in enough to make it pay. It does not seem right that small percentages of cane syrup or sugar, when found in honey, should be taken as absolute evidence of fraud, either on the part of the dealer or the producer. Witness, for example, the case spoken of by E. H. Schæffle in this issue. Only a small per cent of cane sugar was found in the honey, and yet it is evident that neither the producer nor the dealer meant to defraud.

THE BEE-KEEPERS' UNIONS; A REPLY TO PROF. A. J. COOK.

THE following is just received from General Manager Newman:

Editor of Gleanings:—In your issue of June 15, page 449, Prof. Cook attempts to show that the members of the National Bee-keepers' Union did not understand what they were voting on at the last election. As my name is connected with that statement, allow me a few remarks.

I give the members of the Union credit for more sagacity than that, and I do not think the professor will dare to stand by his published statements.

In the first place, Prof. Cook makes this statement: "Mr Newman says the old Union can not attack any evil but such as it has combatted in the past." I beg to say that I never made any such statement, either to Prof. Cook or any one else, and I demand the proof, or the withdrawal of that assertion. Let me state a few facts which none can dispute:

Thirteen years ago the National Bee-keepers' Union was formed in order to defend bee-keepers in their rights as citizens of this republic. This it has done to the satisfaction of all. The Advisory Board has been consulted in every important case, and the General Manager has always been in perfect accord with the Board, there never having been a single disagreement. Indeed, there has been such unanimity up to this time that there has never been a dissenting voice relative to the course to be pursued. The instructions given by the Board in the past have been by me carried out to the letter; and what the Board decides to do in the future will be done; but I can assure Prof. Cook and every other member that neither the decision of the Board nor the vote of the members will be *disregarded*, as he advises in the third paragraph of the article in question. Such a thought is unworthy of a loyal member of any organization.

Last fall the Board gave every instruction necessary to the voting, how the ballots were to be disposed of, who were to count them, etc. For extra caution, as I imagined there might be a question, I directed that they be counted in the presence of a public official, and they were so counted and certified to by the County Clerk, and the correctness of the count was attested by him under the seal of the Superior Court.

At Lincoln, Neb., last fall, a new "Union" was formed for doing the particular work of prosecuting the adulterators of honey. Its originators offered to amalgamate with the National Bee-keepers' Union, and that amalgamation was submitted to vote — the result being for amalgamation, 51; against it, 106—more than two-thirds vote against it, when it would have needed two-thirds for it to have carried. This was an overwhelming defeat.

As Prof. Cook says he voted against amalgamation, he voted with the great majority to continue the *two* organizations as they were before, even though he now says it was "senseless" to do so. He now intimates that the line of defense which has occupied the Union for the past 13 years is "no longer important." The many bee-keepers who are being legislated against all over the country, and are in danger of being fined or sent to prison, will certainly demonstrate that the defense of the pursuit is yet quite "important."

Again, the Professor says. "The old Union has got to fight living issues or die." Why, my dear sir, that is just what it has been doing all the while—living issues—yes, and for the pursuit, the very *right to live* — its very existence. It will still be "fighting living issues" when its enemies are no longer able to "kick."

The editor is right in saying that there is now as much room for the *two* organizations as formerly—for the old North American Bee-keepers' Association simply changed its name to be able to prosecute adulterators. The two lines of work are distinct—one to *prosecute* adulterators, and the other to "*defend*" bee-keepers; and, if the members so decide, there is no reason in the world why they should not remain separate organizations and each do its work, and prosper.

If the next meeting of the North American Bee-keepers' Association at Buffalo shall amend the rejected constitution so as to be consistent and effective (as indicated in my criticisms of that document), and it is desired by the Advisory Board of the National Bee-keepers' Union to resubmit it to the members, I shall be pleased to have it done at the next election. If not, then the two organizations should act in harmony, and let the matter of amalgamation drop.

If I am standing in the way, as Editor Root intimates on page 450, let the members of the Union elect Manager Secor, or some one else, and I shall gladly welcome my successor, as I have often plainly stated before. Until then, let us have peace.

THOMAS G. NEWMAN.

San Francisco, Cal., June 22.

If Mr. Newman did not utter the sentiment attributed to him by Prof. Cook, he has said something very much like it. I have not the time to go back over his official utterances, but I do find in the last report he says: "The National Bee-keepers' Union was brought into being for a special purpose—that of defending bee-keepers in their rights as apiarists." And again: "If the Union is to be reorganized to do this work, it will subvert its original purpose and mainly change its character." And again: "The funds in the treasury were accumulated as a defense fund, and should not be appropriated to other uses, without a full and well-understood vote." After this vote was taken, in an article in the *American Bee Journal*, page 291, Mr. Newman again says, with an air of triumph: "The National Bee-keepers' Union decided by an overwhelming vote that it would not consent to amalgamation nor to the use of its funds for a purpose for which they were not created." It will be seen from the quotations above that Mr. Newman practically recommended that the Union continue in its old line of work, and the voters simply followed his recommendation; that, while the thought set forth in the quotations may not be precisely the same as that attributed by Prof. Cook to Mr. Newman, it is so much like it that, to argue the point, would be splitting hairs.

I am with Mr. Newman and Prof. Cook both in wishing for peace; I am also glad to note that Mr. Newman will be willing to submit the question of amalgamation, providing a union of the two organizations is still sought by both. —ED.

A VISIT TO VERNON BURT'S APIARY; HANDLING SWARMS AT AN OUT-APIARY RUN FOR COMB HONEY.

ON Thursday, June 24, I called upon our old friend Vernon Burt (about three miles out), who has the reputation of securing a crop of honey every season, good, bad, and indifferent. I had not seen Mr. Burt this season; and as clover was unusually abundant, I had a curiosity to know how he was coming on. I strapped the Kodak on my back, mounted the wheel, and in a short time I was at his home yard. He had just returned from his out-apiary, that he is running for comb honey without an attendant, and I had caught him nicely at home. The bees were roaring and pouring in at the entrances, not in the pellmell style as they do on basswoods, but in that quiet way they do during clover bloom. Said I:

"They tell me you have just returned from the out-yard. How do you manage about swarms during your absence without an attendant?"

"All my queens are clipped, and I make sure to see that they have plenty of room."

"Well, what do you do when swarms come out when you are away?"

"I let them come out and go back again. I visit the apiary about every day, and if they come out while I am away, they will also be likely to come out again when I am there, and it is *then* that I hive them."

"How do you hive them?"

"I move the parent hive to one side, put a hive of empty combs in its place, and on this I put the super that was on the old stand with its sections completed and partly completed. All the flying bees will, of course, go back to the old location."

"What do you do with the cells in the parent hive?"

"Let them alone. The colony will be so depleted that there will be no after-swarms; and the first swarm itself will not swarm again, but go right on storing in the supers."

"But don't you lose any swarms in that way?"

"Not that I know of," said he.

"How do you manage with swarms at home?"

"In the same way."

"Who looks after your bees here?"

"Mother. She lays a stick on top of the hive from which the bees came out, and lets them fly around till they get ready to go back. When I see a stick on the hive, or some unusual marking, on my return, I know what it means, and treat them accordingly."

"Have you come to any conclusion as to what size of hive for general purposes you prefer?"

"I did think at one time," said he, "that I preferred the ten-frame. I can get the bees in shape easier in the spring in that size than in the eight; but lately I have found that I can increase the bees up to the proper strength in the small hives, and they are more easily handled."

"Which hive do you use at your out-apiaries?"

"The new dovetailed eight-frame. I leave all double-walled and ten-frame hives in this yard."

"I notice your bees appear to be quite busy. You will probably secure 50 lbs. per colony."

"Oh, yes! I shall do as well as that, any way."

Then he opened several hives and showed me how his bees were working in supers. I noticed particularly that the bees were doing just as well on the outside rows of sections as on those in the center; and the sections in all parts of the super seemed to be keeping pace with each other. He went over his hives at random, and every one of the supers seemed to show this even building of the combs.

"How do you account for this?" said I.

"By the slow even flow from clover and plenty of bees."

I then took several snap shots with a No. 5 Kodak, and if all goes well I will show you how nicely Mr. Burt keeps things in and about his apiary. He seems to take things pretty easy, notwithstanding he has 125 rousing colonies at his home yard, and 100 at the out-yard.

"You do not seem to be in a great hurry or excitement," I said.

"No," he replied; "my queens' wings are all clipped; and before the honey-flow sets in I have every thing all in readiness—supers, sections, etc., so that, during the harvest, I do not have to be bothered with startering sections or any thing of the sort. I simply pile on supers, and watch the bees pile in honey; and the swarms, when they come out, well—I take care of them when I get ready."

"Do you use bee-escapes?"

"Yes, sir. I hardly know how I could get along without them."

NOTES OF TRAVEL

BY A. I. ROOT.

And a man's foes shall be they of his own household.—MATT. 10:36.

In my last I told you that in my trip from Bannock to Barnesville I met with about the usual number of adventures, and I want to tell you something more about it. When I got off at Bannock Station I found the pike without any trouble, and started off in a southerly direction. It was sprinkling just a little at the time; but I always enjoy a sprinkle that will lay the dust; and when I am on a stone or graveled pike, so far as *I* am concerned I do not mind quite a little shower. *Mrs.* Root does, however, and she always objects to my riding in the rain unless I have on some old clothing that is of no account; but with this old clothing I am not presentable before strangers. Well, the gentle sprinkle changed to a pretty smart rain after I had gone a mile or two; and in looking about for shelter I discovered a large wide-open gate with a graveled drive that led up among beautiful flowers and shrubbery; yes, and in the midst of the shrubbery was a fountain playing. Of course, the summer shower made every thing look still more lovely; and the beautiful lawns spreading out on either side made me wonder for a time if I had not alighted upon enchanted ground. Come to think of it, I think there *was* some enchantment about the place. Now, do not look disgusted when I tell you that I soon discovered I had wheeled into the open gates of the Belmont Co. infirmary. It is a beautiful place, any way, and does credit to the people of that county. After I had had a pleasant chat with the gentlemanly superintendent the shower abated, and I took another graveled driveway out to the main road again. When I came *into* the grounds I was well satisfied that the main road or pike ran south or pretty nearly so. It might have been somewhat southwest. When I got on to the same road again (out of the "enchanted" ground) it seemed to be going westward; and by the time I had got to the bottom of the long hill, I was going just about north, as it seemed to me; and here the pike from Bannock struck the national pike just as I had been led to think it would; but it did not occur to me at the time that it was a little *strange* that I should come into the national pike from the *south* side instead of the north. Never mind; here was the pike, sure enough, and, no matter how I got there, the thing to do was to turn westward to Barnesville, and this I proceeded to do, feeling as happy as a schoolboy because I was away from business, and out on a vacation, with nothing to do but to have a good time.

Well, I admired the pike, people, and the scenery, even if it did rain. Finally, in order to be a little sociable with my fellow-men, more than because I had any doubt about the proper course I should take, I asked about how far it was to the Barnesville pike.

"Barnesville pike! Why, my good friend, you are going *away* from the Barnesville pike, and at a pretty good pace too. If you want to go to Barnesville you want to turn around and go the other way."

Now, I was as much astonished at this piece of information as if I had seen the sun setting in the east. (By the way, I have several times, in traveling, been greatly astonished to *see* the sun doing this very thing.) I reflected a little, and finally, in a sadder and wiser frame of mind, I turned around and climbed the great long hill that I had just ridden down. The hill was wet and slippery, and I was having quite enough exercise without running down hills and then turning around and climbing them again just for the fun of it. I tried in vain to convince myself that west was in the direction the man said it was; but that stubborn part of a person when he is turned around would not be convinced. It made me think of the old adage, "A woman convinced against her will is of the same opinion still," and I mentally decided that, if any *woman* was as contrary as this other part of myself, she must be pretty bad indeed.

Permit me to digress just a little right here. I have before alluded to the fact that there seems to be in every one of us another person—a somebody who seems to be *involuntarily* managing for us. If we fall into the water this other self draws in a great big breath or a sort of gasp. I do not know what he does it for unless he thinks he may get under water and not find plenty of air, so he will lay in a great stock. If somebody goes up behind you noiselessly, this other chap makes a great start. *You* do not do it. In fact, you have nothing to do with it. You could not help yourself, even if you tried to. This queer fellow is right along with you, sleeping and waking. You do not seem to be able to get along without him, and sometimes it is a pretty hard matter to get along *with* him. He and I had quite a tussle about this matter of getting lost. I was vexed because I had lost so much time and strength in going several miles out of my way, through the rain and mud, and I threw the blame all on him. Said I:

"Why, you might have known when you came into the big pike that you were to turn to the *right* to go to Barnesville. What on earth possessed you to turn to the left?"

But this fellow said:

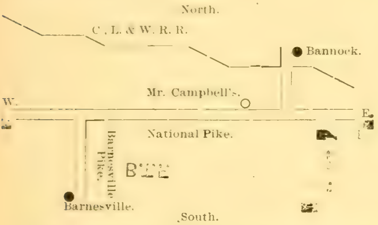
"I think the left is the right way yet. I am sure it is straight west, no matter what the man said. I do not believe he knew."

And (would you believe it?) this fellow was so contrary I asked another person. Then said I:

"Why, you stupid idiot, how *could* you get into the national pike on the south without crossing it somewhere, when you started out on the north side?"

At first this other fellow would not say any thing; but when I insisted on some sort of answer, he said he did not know how "we" got there on the south side of the national pike, but we certainly came into it on the south, and he would always stick to it. Did you ever hear of any thing more illogical or provoking? Of course, we two dropped the subject. There did not seem to be any thing else to do under the circumstances; but in spite of every thing I could do he would have it that we were going to Barnesville by traveling *eastward;* so I at last gave up; and when I got mellowed down a little I began to enjoy that beautiful pike. Of course, there were great hills to climb, and it was rainy enough to make the stone roadway a little slippery; but the grand country that showed itself at the top of every piece of rising ground was ample compensation. It seems to to me I never saw so much white clover before in all my life as on that trip. I was told there used to be quite a business in keeping bees, but most of them had given it up in consequence of the repeated poor seasons. Just now everybody told me, however, they were having a great flow of white-clover honey.

The rain began to increase again; but I tied up my coat on my handle-bars so it was pretty safe, and while in my shirtsleeves I greatly enjoyed "letting it rain;" in fact, I was feeling about as happy as I usually get, riding in that summer shower. I began to feel somewhat thirsty; but the great delicious breaths of that damp water laden air gave me a peculiar enjoyment that I have mentioned once or twice before. If one could get intoxicated on *pure soft water*, I do not know but I should call it a grand kind of intoxication. When I was breathing the heavy spray at Niagara I felt the same exhilaration. I finally came to one exceedingly long hill, still traveling east, as it seemed to me. The rain was increasing to such an extent that I knew I should have to stop at the first convenient dwelling. On top of the hill there was a very pretty little home, on the right hand side, and on the south side of the road—at least this other fellow I have been telling you about insisted it was on the south side, while I was traveling east to get to Barnesville. I have made a little diagram below to show you how I was situated.



You will readily notice the Cleveland, Lorain & Wheeling Railroad where it crosses the pike at Bannock. I have put on the points of the compass so you will have no difficulty in understanding the situation. When I left Bannock I was all square with the world. When I got to the national pike I was turned exactly around. If you take your book and turn it upside down you will see how I was turned around. I was going to Barnesville by traveling from left to right, or at least so it seemed to me in my turned-around condition. I reached the top of the great hill, turned down a little lane, and pushed my wheel into an empty coal-house or shed; but as it continued raining I told the good people who I was, and finally induced the proprietor to take his team and carry me to Barnesville; and the course he took seemed just like going back to Bannock; but yet we found Barnesville all right. Of course, I was turned around all the time I was there; and when I started to go home I left the place exactly as it seemed to me as I left Bannock the day before.

Now, my good friend Campbell, when he carried me with his team the day before, took a common road over the hills; therefore when I took the pike to go home with my wheel it was a road I had never traveled before; but I should get on to familiar ground when I reached Mr. Campbell's, where I had left some of my wet clothing.

Now comes the strange part of my adventure. In running from the Barnesville pike down to the national pike I went through the same kind of experience that I had in leaving Bannock. I started, as it seemed to me, going southward toward the national pike. When I reached it I was turned around again, and came into it from the *south*. Getting turned around twice brought me right.

When I discovered this second change I thought of the man who was "clothed and in his right mind," and felt happy that I could make the rest of my journey by the points of the compass, and have them seem as they really were; and I began speculating, before I reached Mr. Campbell's, as to what the probable result would be when we came to the house where I had stopped in the rain the day before. In my present "frame of mind" I should find that house on the top of the hill on the opposite side of the road. I could not make it seem possible. Now, let us imagine that there was a discussion between myself and this stubborn, contrary other part of myself. I said:

"Now, look here, old fellow, you were pig-headed yesterday, and got me into a lot of trouble. I tried every way in the world to convince you by solid reason and plain facts that *east* was not *west*, but you would not give up. Now, sir, I have got you in a corner. When you come to Mr. Campbell's, where we stopped yesterday, you are going to find it on the other side of the road. Yesterday you declared he lived on the south side of the road. Now, when you find his house, barn, and coal-shed all moved over on the north side, what are you going to do? My good sir, how will you explain your inconsistency and foolhardy course?"

Would you believe it? The fellow would not say any thing, except that I would find the house on the south side of the road, just as it was the day before. In fact, it seemed to me I was traveling the same road I traveled the day before, or at least in the same direction, but the scenery was different.

Just before reaching Mr. Campbell's from the west I passed through one of the most beautiful valleys I have ever seen—in California, Arizona, Florida, or anywhere else. I do not know of a more beautiful spot on the face of the earth. I got off from my wheel and gazed my fill again and again; and then I drew in long breaths of life-giving air, and rejoiced that God had given me a human life to live. Yes, I rejoiced in the thought, even though God *had* seen fit to send this other fellow I have been telling you about along with me to trouble and perplex me, perhaps until the last day of my life.

I was nearing Mr. Campbell's home, and so I got off from the wheel and walked. If the whole face of creation was going to swing half way round all of a sudden, as they swing a locomotive on a turntable, I wanted to *see* the thing done; and so I kept saying to this other fellow, "Now, then, old chap, which way are you going to have it? Are you going to stick where you are now, or are you going to whop over when you see the old familiar landmarks of yesterday?"

I waited in breathless silence. I looked before me over the hill toward the place where the sun rises, and barely caught a glimpse of Bro. Campbell's house, and, as sure as you live, *his whole farm and surroundings had* been moved during the night to the opposite side of the road. This illusion was only momentary, however; for, just as I was going to crow over this other fellow, quicker than the wind I *myself* was swung around to the east, where I had been looking, and approached my friend's home in the very direction I went from it the day before. My right position of the compass was only short-lived. This other fellow triumphed, and I went all the way back to Bannock turned squarely around; but I inquired my way, so that I did not get into any more mishaps.

I have told this little story, dear friends, simply to illustrate to you the fact that there is a part of myself—yes, a part of your old friend

A. I. Root—that will not listen to reason or common sense. He is a dangerous adviser and an unsafe counselor; but yet I can not get rid of him. He has been with me as long as I can remember—at least I can remember of being bothered by getting turned around in certain localities, even as far back as when I was four years old; and that very spot where I was turned around at that time bothers me to this day. The sun does not come up in the right place, neither does it set where it does here in Medina, and I have to be constantly figuring and planning when I am in that locality unless somebody is with me to keep me straight.

I shall have to explain to the friends in Belmont Co. that I started on my trip with such a sudden rush that I actually forgot to look up our list of subscribers in that locality. And another thing, work was so much crowding here at home that I had absolutely no time for more than a flying trip. I was so much pleased, however, with the beautiful country, nice farms, and farmers' homes, that I contemplate another visit after we are through with our present rush. So don't think your old friend purposely passed by you.

GUIDE-POSTS.

My story in the present issue, about getting turned around, missing trains I expected to meet, etc., illustrates the great need of legible guide-posts throughout our land. Since the wheelmen have agitated the matter, however, we have a good law in this State, a copy of which is as follows:

> SECTION 4734. The township trustees shall cause to be erected and kept in repair, at the expense of the township, at all intersections of the public ways of the township which lead to any city, town, or village, depot, or other important place or road, post and guide boards, displaying, in legible letters, the name, and indicating the direction and distance to all such places to which each of said roads leads.
>
> Upon presentation to one of the trustees of a petition signed by ten free-holders, electors of the township, asking for the erection of a post and guide board at any designated intersection of the public highways of such township, and naming the inscription desired thereon, the trustees shall forthwith cause the same to be erected; and, failing or neglecting to do so for the period of sixty days, the petitioner may cause the same to be erected, and collect the cost thereof, not exceeding five dollars for each post so erected, from the township trustees.
>
> SECTION 2. This act shall take effect and be in force from and after its passage.

In spite of this, however, I did not see a single guide-post on my route, although I looked carefully and anxiously for them.

OUR HOMES.

And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul.—GEN. 2: 7.

Dear friends, it may not be true that this perverse part of us that will not acknowledge the truth when it is presented to us (when we are "turned around") is the *evil* part of humanity, but it is certainly a stubborn and perverse spirit that exists in us all, or at least nearly all. When I can plainly see the sun rise and set, then this stubborn, unyielding spirit *usually* gives up, but not always, even then. Instead of confessing that he is wrong, he sometimes insists that all creation, including the sun itself, is out of joint rather than acknowledge his own blundering. As I am saying, it may not be true that this unreasoning spirit is the spirit of evil that is within us all, yet in some respects it is much like it. A good Christian mother was reasoning with a little boy: She said:

"Sammy, aren't you sorry you were so naughty?"

But he shook his head. She repeated the question, and insisted on his answering. But he only replied that he was not sorry. Poor Sammy! He was perhaps depraved and wicked, but he was truthful; and even since I have got to be 57 years old I have had some experiences like Sammy's.

One day when I was tired out in both mind and body, and thirsty besides, and suffering also for my morning nap, I came into the house for my daily drink of hot water. I felt so tired and worried I would have gladly kept out of sight of anybody until I could reach my desired resting-place. But it did not seem possible unless I went without the cup of hot water I longed for. In securing it, something vexed me and I uttered some impatient words. Then came a conflict that lasted not only several hours, but I felt some of the effects of it for several days. The bad spirit said, "It surely is your privilege to have rest and a drink of water if you ask for nothing more, even if you do make somebody else a little trouble in getting it."

But another spirit (and I trust it was the ruling one) kept remonstrating by saying:

"Are you living for self or for the good of others? Are *you* going to take care of yourself through life? and when you come to die are you alone equal to the task of closing your dying eyes, or do you expect others to care for you when you can not not care for yourself? Is your life in this world 'to be ministered unto or to minister' to others?"

And then comes the thought of my favorite text, about bearing not only our own burdens but those of other people, for Christ's sake. Christianity opposes point blank the idea of self and selfishness. At such times this other spirit, or "other fellow," will say:

"Oh! these nice texts are all very pretty to talk about in prayer-meeting. The idea of self-sacrifice is very well to sing about in hymns; but when it comes right down to living it out in every-day life, it is a good deal humbug and folly."

Yes, dear reader, it is true that I, who have been a Christian, or at least have called myself one, for 25 years or more, have something within me that suggests thoughts like the above. There is the selfish, unreasoning brute nature remaining still. Somebody has suggested that we were created brutes or savages, and would have remained so had not God himself breathed his spirit into us; and, in the language of our text, from that time forward "man became a living soul." That word "living," I think, should be taken in the sense that our Savior uses it in speaking of life—John 10:10: "I am come that they might have life, and that they might have it more abundantly." We do not understand by this simply animal life, but spiritual life born of God. The Bible enjoins us on nearly every page to beware of this selfish animal nature. In some places it is spoken of as the old Adam. In one text it says, "He that ruleth his own spirit is greater than he that taketh a city."

There is a suggestion that the God part within us should hold in check this unreasoning animal nature. This "other fellow" that I have spoken of in my travels in this issue would urge to strike back when we are injured. The God part says, however, "Love ye your enemies;

do good to those that hate you." In one of the recent prizefights it is reported that the crowd cheered on one of the parties, urging him to *kill* his opponent. In the last fight of all, it is said that even a *woman* used such an expression. Now, there is not only no Christianity in such an attitude of the human heart, but there is no sense or reason, and Christianity should be reasonable above all other things. A small boy pushed a larger one off from the walk into the mud, and soiled his clothing badly. The larger boy got up, but did not do any thing by way of retaliation. Somebody asked him why he did not give that boy as good as he got. He replied good-naturedly, "Then there would have been two suits of clothes to be cleaned instead of one."

The boy might have added that two tired mothers would have been obliged to clean up two suits of muddy clothing instead of one. This boy was not only a Christian but a philosopher. He let sense and reason guide him instead of the low passion of revenge.

A few days ago one of our boys came to me saying a man who works near him had struck him several blows. The man admitted he did, but said the boy called him a bad name, and for a time he insisted that it was the right and proper thing to do—that a man is justified in striking a boy just because the boy "sasses" him. How sad it is that so many people will still hold fast to this old-fashioned silly idea, that, to make things right, one man must strike another, or strike a boy, if he chooses, simply because of something he says! This "other fellow," of whom I have been talking, says, "Knock a man down when he abuses you." Sense and Christianity say, "Not so;" and *Jesus* tells us to turn the other cheek also when we have received a blow. After I had talked a while with these two friends of mine (the man and boy) the older one got the upper hand of the brute spirit within him so far as to tell me he was sorry that he let his temper get the better of him, and finally he told "*Johnny*" he was sorry, and asked his forgiveness. When he had got thus far, Johnny, not to be outdone—for a good spirit is catching as well as an evil one—said, "All right, I am willing to let it go, and I will ask him to forgive me for my foolish talk, which would not have happened if I had been attending to my work."

Many great and good men would have been almost perfect in their characters had it not been for their tempers. Our lamented friend and teacher, Drummond, in his little book, "The Best Thing in the World," says a bad temper is "the vice of the virtuous." I suppose he means by this that people who are so intelligent and well bred that they would be above any other sinful habit are sometimes guilty in just this one respect. I told you that this "other fellow," who *always* goes with me, had tormented and vexed me since I was four years old. Well, I can remember that this same "other fellow," or one of his relations, used to torment and vex me when I was scarcely more than *three* years old. We lived then in a log house with only one *other* apartment, and that was the woodshed. Sometimes when mother's boy was persistenlty bad she would say to me, "Amos, I think you will have to go out into the woodshed and stay there till you can get rid of the bad boy." Well can I remember of going out there and sitting down and endeavoring to quell the tumult in my childish heart. Sometimes mother would call to me, "Have you got rid of the bad boy yet?" But I think I was like Sammy. I could tell the *truth*, even if I could not drive out the evil spirit. So I replied, "Not yet, mother." In due time, however, I would come in smiling; and in answer to her inquiry, "Are you sure the bad boy is all gone?" I could look up frankly and smilingly into her face and say, "All gone, mamma," and then I was happy, and *she* was happy too. I presume that old mother will read these very words, and remember the incident as vividly as I do now.

Our older readers will remember of a minister who was a bee-keeper who used to write for these pages some years ago. Although he was a minister of the gospel, and a good one too, he was all his life tormented by a disposition such as I have described. It even followed him at times into the pulpit, and again and again the evil one was driven away only by earnest prayer to the Savior and Redeemer of mankind. On his deathbed he said to his wife and children something like this:

"Dear friends, I feel and see that the evil one has finally lost his power and hold on me for ever and ever. Nevermore, through all eternity, shall I feel his touch and abiding presence again; and I glory in the thought of being with Jesus, where sin and temptation and remorse shall never reach me again."

Now, then, friends, the question comes home to you and to me, "Who is going to rule and guide—the 'other fellow,' who would lead us into trouble and snares, or shall sense and reason, and the influences of the Holy Spirit, lead your life and mine through the remainder of the years we have to live?"

Return, O Holy Dove! return,
Sweet messenger of rest;
I hate the sins that made thee mourn
And drove thee from my breast.

HIGH PRESSURE GARDENING

REPORT ON THE NEW VARIETIES OF STRAWBERRIES IN THE MIDDLE OF JUNE.

The Marshall has done grandly, both under glass and in the open air. Brandywine is just beginning to ripen, and grow berries that can hang on the vines for two or three days, and still be so firm and solid that they may be tumbled about like potatoes. The Wm. Belt is well loaded with fruit, but only just beginning to ripen. Margaret has given us some of the largest and finest berries I ever saw; but the Nick Ohmer caps them all, not only in great size, but in producing berries as round and symmetrical as a peach, and pretty nearly the size. I kept one on the vines for three days to show to visitors, and it was very solid and firm when picked. It weighed almost an ounce and a half. This was from a plant set late last fall. The runners were not picked off, and it was allowed to mature a full crop of fruit. Carrie, a seedling of the Haverland, is a much larger berry than "her mother," and considerably firmer, and I hope as prolific, although I am not certain, for I had only half a dozen fall-set plants. The shape of the berry and the appearance of the variety are almost exactly like the Haverland. Clyde started out to give a great lot of berries on spring-set plants. One of the plants set so full, in fact, that, when it got its great cluster of berries almost ripe, it — up and died! I suppose it was the hot weather that did it while the plant stood by itself unprotected. It seemed almost like "cruelty to animals" to let it undertake to ripen such a big lot of berries. Now, when you are testing new plants take a warning from the above.

WHO WOULDN'T BE A GARDENER?

Sometimes I think it strange that there is anybody in this world who does not have a garden; and then at other times, when prices are low and we can not get the cost of our stuff, and every thing seems to go wrong, I do not wonder that so many people say they would rather buy their stuff, what they want, than to be bothered with any sort of garden. Well, yesterday and to-day have been bright days for the gardening business. After a severe drouth we had a succession of refreshing showers. Our beds were so full of plants that I began to fear we should never have customers for all of them; but after the shower the people came in crowds for plants. I stationed myself near the garden, and called in help for the boys, and it kept me as busy as I could be in answering questions and giving directions.

In putting up vegetable plants quite an amount of time may be saved by a little preparation beforehand, and the exercise of some study and brainwork. Unless I am around to take charge of things, our boys will go with the customer and let him select the plants he wants. Then they will take them up and carry them to a stand or table, and sometimes right into the store, and they used to tie them with wrapping-paper and string. But I have shown them a much better and cheaper way. Get some stout paper bags, such as hardware dealers use to wrap up nails, etc., with. Have three or four sizes of these bags at different points, and especially near the beds where the plants are growing. When a customer calls for plants, and tells how many he wants, select a paper bag of the proper size, put your hand in it and straighten it out so the top will stay open; then take up your plants and lay them in a heap, shaking off most of the dirt as fast as they are taken from the soil. When you get the right number, take both hands and press the roots up into a small compass, letting the tops come up between the wrists. Now, if your paper bag was opened properly, and is of the proper size, you can put the ball of roots right down to the bottom. The paper bag protects them from the air, keeps the dirt from rattling off, gives the tops just enough ventilation, and not too much to have them keep without wilting. If you do up your plants first, and handle them twice, you rattle the dirt off a good deal more, and expose the roots to the drying effects of the air. I suppose, of course, no plant-grower would undertake to remove plants without first thoroughly soaking the bed with water. Even after we have had a long rain we think it best to soak the ground, either with the hose or watering-pot; then with a good stout trowel push clear under the plant, and loosen it up so all the small fibrous roots will come out along with it. A smart boy who is trained to the business, and carries his paper bags along with him whenever he goes for plants, will wait on a dozen customers, and have things in better shape, in less time than *some* people would take to wait on a single customer

While the "boom was on" for plants people began to go for the strawberries lively. They had just got down to 8 and 9 cents, and somebody in the store was complaining that there was not a quart of strawberries to be had. and customers waiting. But there were some big rows of Bubachs, Marshalls, and Brandywines waiting to be picked; and in a twinkling we had a lively time around the *strawberry*-beds. We might have put up a notice, "Beautiful strawberries picked while you wait." In fact, that is what we did do. With myself on hand to show off the plants, and give the names of the different varieties, it was not at all surprising that customers would say, "Well, I think I will have a quart;" or, "Why, I will take two quarts of those great big ones, if you give heaping measure like that," etc.; and just when I began to fear there were more strawberries than we could easily get rid of, they were all cleaned up—in fact, so much so that the boys, in their efforts to get a few more quarts for a customer, picked some that were rather green. Oh how the new varieties have brightened up and enlarged since the rain!

This year we are testing our new varieties, as I have explained, by putting them in our plant-beds 18 inches apart. This is just about right; and if you do not step on the beds at all it gives plenty of room for putting down runners. It is wonderfully interesting to me to note the peculiarities and desirable traits in the different candidates for public favor. For instance, Clyde, that has been considerably talked about, is really bearing a wonderful crop —wonderful considering that the plants were put out only this spring. The Ideal, planted at the same time, is giving the handsomest berries in shape and color, almost, that one ever saw. The berry called "Pet" (I do not know where it came from) is the sweetest berry I ever tasted. It really brings forth an exclamation of surprise when one puts it into his mouth. I do not know how good a berry it will be, for all I have mentioned above were put out last spring. Brandywine and Wm. Belt are both doing wonders. These were planted out late only last fall, and yet an acre of such berries as they are bearing would be a pretty nice thing to have, I assure you. Great big berries, with the boxes heaped up, bring just about double the price of ordinary varieties, such as Warfield and Haverland.

Some years ago Peter Henderson recommended a plan for market-gardeners, for growing strawberries. It was. to put out potted plants in the fall (of course the earlier the better), on rich ground where some crop had been removed. All the runners were to be kept off, the plants stimulated to their utmost, and then, after they have borne just one crop, eight or ten months after planting, plow them all under and do it over again. On account of the difficulty of working up the ground thoroughly while it is occupied by a crop of berries, and also the tremendous expense of weeding out a weedy strawberry-bed, I often think I should like Henderson's plan pretty well. Work your ground up deeply and thoroughly, after any spring crop comes off, then plant your strawberries, get one crop, and then do it over again.

At present writing, June 22, all of our strawberries may be said to be in their prime; and I tell you we have got some wonderfully nice berries among the new ones that are now before the strawberry-loving public. There are so *many* splendid berries I really feel troubled in deciding in regard to them. The Marshall has done grandly. The berries are large, there are lots of them, and they are quite early. The color is beautiful, the shape is almost faultless, and the flavor delicious. Our bed where we grew them under glass is even now putting out blossoms for a moderate crop to ripen along in July, just as we had them last year. But, why is not the Marshall good enough? Well, the Nick Ohmer and the Margaret are considerably larger than the Marshall. On my small experimental bed, however, they are not bearing as many berries as the Marshall; but it should be remembered that they were planted late only last fall. The Brandywine comes in just after the Marshall, and the berries are immense; but it does not furnish the quantity that the Wm.

Belt does coming a little later. The plants were, however, put out late last fall, and may not be up to their best; but the Wm. Belt was also planted late last fall. This spring they did not seem to have withstood the winter nearly as well as the Brandywine; in fact, I was somewhat disappointed in regard to its hardiness. But they began to grow, and, almost before I knew it, had put out great fruit stems, and now it is ripening the largest berries I ever saw in my life; and in *quantity* they are piled up almost like the Haverlands.

As Matthew Crawford says, the first berries to ripen are a good deal cockscombed; but after that you get berries as nice in shape as the Marshall or Nick Ohmer. Just a word about these first cockscombed berries. We had one that seemed to be great flat berries united. There were four lobes to it, in fact, and it was a good deal the shape of a cube. Its weight was 2¼ ounces—I think the heaviest berry I ever grew. If you take a peach or an apple weighing 2¼ ounces, you will get some idea of its size. The cube was 2⅛ inches on each side. Of course, the berry had to be eaten as you would an apple, and it took several bites to eat the whole of it. At present writing there are lots of these berries that are simply great chunks of fruit. It is almost as sweet as the old Sharpless, and they are good eating without any sugar at all. When one is tired and thirsty, say along between ten and eleven o'clock, three or four of these large berries make quite a nice little lunch. In Mr. Crawford's spring catalog he answers the question, "Which is the best strawberry?" as follows:

> I will say that the Wm. Belt is the best berry that I have ever grown here.

I do not know but I pretty nearly agree with him. He adds further:

> For vigorous growth, great productiveness, large size, and good quality combined, I never saw its equal. Under high culture, the first berry on the fruit-stalk is apt to be cockscombed: but who will object to having a few of their berries flat and three inches in diameter? I am not sure that I ever saw two misshapen berries on one fruit-stalk. All but the first one are uniformly of good shape. The color can not be improved. It is neither crimson nor scarlet, but bright, glossy red.

Now, mind you, from my standpoint this 22d day of June I feel like placing the Wm. Belt equal to any thing I have ever come across in the way of a desirable berry. Of course, we want some earlier berries, before the Wm. Belt begins to ripen, and we are just now making our last picking on Michel's Early.

Our friend Dan White, of New London, O., was here a few days ago, and he tells me he is putting out an acre and a half this year on the plan I gave on page 782, Oct. 15, 1895. He says there is not a ripe berry to be found among his Gandys as yet, and he places the Gandy as the latest berry to ripen he has ever found.

By the way, the berry that I was so well pleased with last year, and that came as the Great American (see p. 508, issue of July 1st, last year), I am obliged to think is only our old friend Sharpless under another name. The berries are now in their prime; and the reason they were so much later than every thing else last year was on account of their being grown in such a thick solid bed. The rank foliage and the close planting kept the sun out so as to make the berries late. Well, even if it *is* the Sharpless the incident has opened to me a new possibility in strawberry culture. Make your ground exceedingly rich (it had better be heavy clay soil underdrained), then let the plants grow all over. Let them stand just as thick as they have a mind to. Perhaps some currant bushes or something of the sort to help shade the ground will assist in making them backward. Now, notwithstanding its cramped circumstances, the Sharpless, after all other berries are gone, will produce great monstrous fruit. Of course, the berries will not be colored up very much, or at least not to amount to much; but the Sharpless is very nice to eat when it is partly ripe. But you will find a purchaser at good prices while other berries are too small to bother with. Besides, such a plantation would be little or no trouble. When once started it would choke out every weed that attempts to grow. I have now in bearing some of the *genuine* Great American which I received from the originator a year ago. It is a very nice large berry, much like the Marshall, but later; but the plants which were set out last fall do not bear as many berries as the Wm. Belt put out under similar circumstances.

SUB-IRRIGATION FOR STRAWBERRIES.

At this date, June 26, right here, we are having a pretty severe drouth, and it comes almost right in the midst of our strawberry crop. It affects us worse because the ground was packed down so hard by our excessive rainfalls that it cracks open and does much damage except where the surface has been fined up by cultivation. Our choice strawberries that were planted out late last fall, and which are in narrow rows, we have cultivated and fined up the space between the rows, so as to obviate the drying and cracking, at least as much as we could without interfering with the mulch. The mulch of straw and potato-tops is not sufficient to prevent damage entirely. Our berries are drying up, the greater part of them, and look as if they had been cooked. Had the soil been worked up down deep after the heavy packing rains, the damage would be but slight. In fact, corn and potatoes planted in well-pulverized ground after the rains are not suffering perceptibly. We have just had an opportunity of testing the benefit of water in one of our sub-irrigating beds. It is planted to strawberries, but no water was turned on during the spring. I purposely left the bed until the berries began to be small and dried up somewhat. Then we turned on water until it came up from below, so as to dampen perceptibly the surface.

In 48 hours the whole aspect of the bed was changed. Every green berry began to fill up and expand wonderfully. Those that had begun to shrivel, plumped out, looked very glossy and juicy, and they were juicy too, I tell you.

There has been considerable said about selling strawberries at the low price of 4 and 5 cts. a quart. Well, that *is* pretty low; but if we had our beds so arranged that we could water them from below, letting the water gradually rise up until it comes just near enough the surface, I do not know but we could do a pretty good thing by selling *water* at 4 or 5 cents a quart. Choice varieties like the Brandywine, Wm. Belt, Marshall, and others, bring 6 and 7 cents a quart—sometimes 8.

By the way, the latest berry to ripen on our ground this season is the Champion of England. I think the location of the bed, however, helped to make it late. It was on the north side of a grapevine-trellis, and protected from the sun pretty well all through the day; then it was mulched with potato vines last fall, so that the plants had to creep up through the vines to get out into the open air. This helped to make them late. This morning we made our first picking. A good many of the finest berries were scattered through the potato-vine mulching. The drouth had hurt them but very little, and the great clean luscious berries hidden away in the dried-up potato-vines were in beautiful shape. To get berries extra early they should be in thin rows, or, better still, in hills, and we should work the ground without any mulching until just before the fruit ripens; but for a very late berry, heavy mulching is needed all through the spring to keep them back, and then the shade of a grapevine or of trees will also help. This, with heavy matted rows, will enable us to have fine large berries after the others are gone: and my impression is, that sub-irrigation, with the water let on at just the right time, will also help to prolong the crop.

WINTER OATS—ONE OF MY FAILURES.

Perhaps I have been telling about some of my successes a little too much, while I have said little or nothing about recent failures. A year ago I reported that our Rural New-Yorker winter oats came through all right, or with but little injury. We saved the seed and put in between two and three acres last fall. They came up promptly and showed a good stand all winter, although I remember of several times thinking they looked a little queer for oats. They wintered perfectly, and this spring we had a magnificent stand. In some places they were a little scattering; but they stooled out so they just kept down the weeds and every thing else. When they began to head out, my teamster suggested that the cold winter had turned the oats into chess. I told him what the experiment stations and agricultural papers say about it; but he said he knew all about that; but when I saw a whole field of grain turn into chess he thought I probably might have my faith shaken a little, or something to that effect.

My oats kept growing, and they kept looking more peculiar. There was some real old-fashioned chess among the oats, and I sent a man over to the field to cut it out. Another friend suggested there were two kinds of chess, and that my winter oats looked very much like one of the kinds.

About a week ago, when the oats came into bloom and there were going to be three or four grains where there should be one of oats, I was obliged to give up that something was the matter. I sent samples to our experiment station and to the *Rural New-Yorker* folks I also sent a sample of the oats I sowed, and told them something like this:

"We sowed oats such as we send you by this mail, and we have a beautiful crop of green stuff such as I also send you by this mail. We sowed oats, and shall we reap chess? If not, 'what shall the harvest be?'"

After my two samples and missives had gone I began to feel still more uneasy. I went down to the seed-room and asked for a sample of our winter oats. I showed them to the teamster, to let him see that they *were* oats and nothing else; but while we were looking them over he said, "Why, there is *some* chess in this oats, as sure as you live." Then I looked over the handful, and, to my astonishment and dismay, I found perhaps one grain in five or ten that was a large kind of chess. We could easily sort out the chess from the oats; and my present explanation is that the cold winter killed out every grain of oats and left the chess. In fact, when we plowed it under we could not find a single stalk of oats in the whole two or three acres; but there was a nice even stand of chess. It seems to me almost incredible that the few chess grains should have made so perfect a stand; and it seems also exceedingly strange that not one grain of *oats* survived the winter.

As soon as I discovered the chess, of course I notified both the *Rural New-Yorker* and the experiment station in regard to the matter. Prof. Hickman replied, before he received my second communication, as follows:

> *Mr. Root:*—I am sometimes mistaken, but I think you will have sown oats and reaped chess. I think I am entirely safe in arriving at the conclusion that your experience with the winter oats will be like ours at the station; and that is, that your oats have frozen out, and in their place you have chess. This is not oats turning to chess, but simply history repeating itself. Cut the chess and make hay out of it before it gets too hard, and before the seed ripens or even matures sufficiently to reproduce itself. I thank you for calling our attention to this matter. It is one of interest.
>
> Wooster, O., June 15. J. FREMONT HICKMAN.

Permit me to add further in conclusion, that no such chess as this has ever been seen before on our premises or in this neighborhood. The stuff was promptly plowed under while in full bloom, June 18, and the ground planted to Thoroughbred and Freeman potatoes.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

NEW AND DESIRABLE VARIETIES OF STRAWBERRIES FOR IMMEDIATE PLANTING.

We have decided to furnish the following kinds by mail postpaid, at prices given, but can not promise to ship promptly, for the demand may be greater than the supply. All we can do is to promise to fill the orders in rotation. If the drought continues that is with us now, the only way we can furnish plants will be to irrigate, and this of course will make them more expensive. The first three mentioned are offered by the originators only, and at from $2.00 to $3.00 per dozen. In view of this we think our prices are moderate as follows:

Carrie, Darling, Earliest, and Nick Ohmer, 15 cts. each, or $1.25 for 10 plants. You may have all of one kind, or a mixed lot, of all these, as you choose.

Margaret will be 10 cts. each, or 75 cts. for 10 plants.

Brandywine, Marshall, Wm. Belt, will be 5 cts. each, or 40 cts. for 10.

We shall not be able to furnish them in larger quantities than the ten lots until later on. We will let you know when we can make better prices. By way of description we will say Carrie is a seedling of the Haverland, but the berries are much larger and firmer, and the plants seem to be stronger growers. The Earliest is away ahead in point of earliness of any thing I ever met before. During the past spring we were obliged to cover the blossoms with glass to prevent them from being killed by frost. For such an early berry it is fairly productive. The Darling is much like the Earliest, but a little later. The berries have a wonderfully enticing rose color when only partly ripe. One of our six original plants bore a very large lot of berries. Nick Ohmer gave us one berry as large as a small lemon, and as faultless in shape as a lemon. As we received the plants only last fall we can not as yet say how productive they will be.

Brandywine, Marshall, and Wm. Belt have been sufficiently described in this and previous issues. We are going to try hard to mail the plants promptly, whether we have dry weather or not; and when you get them we hope you will give them shade and water, so that every plant shall live, whether *you* have dry weather or not.

A single strawberry-plant put out in July, watered and shaded and cared for, should make at least a dozen before winter comes; and with such plants as the Earliest, Michel's Early, Warfield, and others, that make plants rapidly, I think I could, in our rich plant-beds, increase one plant to 50 or perhaps 100. Of course, this requires much care and pains. During a drouth I would not only use water, but shade the plants with cloth in the middle of the day; so you see that, even though you do pay a pretty good price for these choice new varieties to start with, if they should continue to find favor you would make a very good thing of it raising plants; and, besides, you would "learn the trade" while you made something. See?

STRAWBERRY SEEDS FOR THOSE WHO MAY WANT THEM.

Notwithstanding the fact that there are probably more good new varieties before us now than we shall be able to take care of in the next ten years, there are still many persons who want to try their hand at new varieties. For the benefit of such we have put up seeds from over-ripe fruit of the following varieties: Sharpless, Warfield, Edgar Queen, and Marshall; and if you were to try your hand at putting up the seeds you would conclude, as our women folks did, that we could not afford a very big lot of seeds for a nickel. It is a rather delicate matter, if I am correct, to get them to grow. Sprinkle them on the surface of some very rich sifted compost or woods dirt; then cover them lightly with sifted moss, just as you would celery-plants, and keep the moss damp until your little plants are up. Price of seeds of above kinds 5 cts. per packet.

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SPECIAL NOTICES FROM BUSINESS MANAGER

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Those having beeswax to dispose of will do well to ship at once. For any thing we now see we will decline the price at least 2 cts. a pound very soon. The season for its heavy consumption in comb foundation is very nearly over: and it has been the experience of past years for prices to rule lower during the late summer and fall. We are now paying 25 cts cash, 27 in trade, delivered here; but we cannot promise this price longer than the next two weeks. If you have enough for a shipment, send it along at once without waiting to accumulate more.

COMB FOUNDATION OUTPUT.

Our output of comb foundation so far this year is away in advance of any year so for in our history. It is already more than double what we made in a whole year two and three years ago. It is simply phenomenal, the demand we have had; and the satisfaction it gives is daily attested by kind words of praise and admiration which we receive in almost every mail. Truly, if it were not for the inventions of Mr. Weed, and the consequent improved machinery for turning out at a very rapid rate this improved foundation, our capacity would not have been equal to such an increased demand, nor would the demand have increased so much except for the superior qualities of the Weed New Process foundation.

SECTION BOXES.

Our output of section boxes is also far in advance of any previous year in our history. We have made, during the three months of April, May, and June, more sections than we turned out during a whole year three and four years ago. Notwithstanding the fact that some manufacturers have offered these goods at lower prices, we have not been able to make sections as fast as they were required, and have called on two other factories to help us out to the extent of half a million. Lately we have not been able to supply the No. 2 grade in the quantities that they have been called for; and some who order No. 2 will be compelled to take No. 1 instead.

If any of our readers can use 4½x4½, 7-to-foot, we have some thirty or forty thousand of this size in stock which we can ship promptly. We have also a surplus of 4¼x4¼x1½, both 2 and 4 openings.

DRAWN FOUNDATION.

Finally we have our dies completed ⅝, and in operation, making drawn foundation. We find that our hydraulic machinery for operating the dies is inadequate to the pressure for using the dies full size, and we are making pieces 4x4, just right to fill a section; and until we get more powerful machinery we are not prepared to furnish it larger nor in very large quantities, but such as we can furnish will be much superior to samples from the former dies—lighter and more delicate. It is already too late to test it in the production of early honey; but the tests on a late honey crop, which generally comes in more slowly, will be more severe.

We offer the drawn foundation in ½-lb. packages at 75 cts. with other goods, or 90 cts. prepaid; three pieces, 4x4, to fill a section, for 10 cts.: by mail, 12 cts.; 24 pieces, 50 cts.; by mail, 60 cts.; 10 pieces, 25 cts.; by mail, 30 cts. If you have prejudices or preconceived notions in regard to this drawn foundation, send for a sample from the last dies and see it and test it for yourself, and then you will be able to speak intelligently in regard to it. It is not too late to test it this season in very many localities.

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"Find $5.50 for queens. The best stock in 1896 out of 130 was an Adel. The best stock this year out of 165 is an Adel from an 1896 queen from you."

Adel Queens $1. New catalog now ready.

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Queens 50 cts.; nucleus, two-frame, with queen, $1.50; one-frame, $1.00; three-frame, $2.00.

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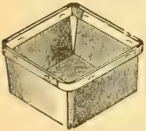

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to M. H. HUNT, Bell Branch, Mich.,

and have it made into foundation. It will cost you only 12½c per lb. for thin surplus, and 15c for extra-thin light brood; 10c, medium brood, or heavy, 8c. A carload of Root's goods at bottom prices. Let me quote you prices, wholesale or retail. Large free price list full of information.

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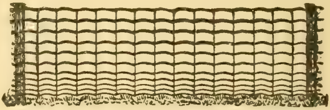

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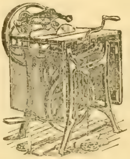

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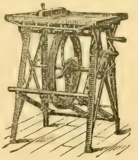

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When more convenient, orders for Barnes' Foot-Power Machinery may be sent to

THE A. I. ROOT CO., Medina, O.

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Next Annual Meeting at Buffalo, N. Y., Aug. 24—26, 1897.

Honey Column.

CITY MARKETS.

MILWAUKEE.—*Honey.*—The market is quiet. The supply is equal to all demands. There is quite a little stock of old comb honey, but nearly all of the common grades. The fancy nearly all sold off, while the common quality is hard to move at any price. Can quote white choice 12@13; white common, 7@11; extracted white, in pails and cans, 5½@6; dark, in pails and cans, 4½@5; white, in barrels, 5@5½; dark, in barrels, 4@4½; beeswax, 25@28.

A. V. BISHOP & CO.,
July 7. Milwaukee, Wis.

CLEVELAND.—*Honey.*—Fancy white, 12½; No. 1 white, 10@11; fancy amber, 9; fancy buckwheat, 6@7; beeswax, 28@30.

A. B. WILLIAMS & CO.,
July 7. 80-82 Broadway, Cleveland, O.

COLUMBUS.—*Honey.*—Old crop white clover, 12@12½; amber, 7½; dark, 6@7. No new honey offered. Market extremely quiet.

THE COLUMBUS COM. & STORAGE CO.
July 7. 409-413 N. High St., Columbus, O.

CINCINNATI.—*Honey.*—There is a fair demand for old and new extracted honey, and prices range from 3½@6, according to quality. New honey is coming in plentifully, and some of the finest clover we ever saw. We are receiving the best light honey from the Southern States we ever did. We had a number of arrivals of fine new comb honey which we quote at 12@13. Demand for beeswax is fair at 22@25 for good to choice yellow.

CHAS. F. MUTH & SON.
July 7. Cincinnati, O.

BOSTON.—*Honey.*—Fancy white, 13; No. 1, 11@12; amber, 10; white extracted, 7; amber, 5@6. Beeswax, 26.

E. E. BLAKE & CO.,
July 7. 57 Chatham St., Boston, Mass.

KANSAS CITY.—*Honey.*—Fancy white, 13@14; No. 1 white, 12@13; amber, 11@12; dark, 8@10; extracted, white, 5@5½; amber, 4½@5; dark, 4@4½. Beeswax, 30.

C. C. CLEMONS & CO.,
July 8. 423 Walnut, Kansas City, Mo.

CHICAGO.—*Honey.*—Not any new comb honey on the market. Extracted is offered freely. A few sales are being made on a basis of 5½@6 for best white. Amber, 4@5, with dark grades selling equally well as the white. Beeswax, 26@27—all offering being taken.

R. A. BURNETT & CO.,
July 7. 163 So. Water St., Chicago, Ill.

ST. LOUIS.—*Honey.*—Fancy white, 12@12¼; No. 1 white, 1@11½; No. 2 white, 10@10½; dark to amber, 7@9; extracted white, 4¾@5¼; amber, 4¼@4½; dark, 3½@4; beeswax lower, 24½@25. The hot weather restricts demand. No movement.

WESTCOTT COMMISSION CO.,
July 8. 213 Market St., St. Louis, Mo.

ALBANY.—*Honey.*—Fancy white, 11@12; No. 1 white, 9@10; fancy dark, 6@7; No. 1 dark, 5@6; extracted white, 5; dark, 4. There is but a small amount of comb honey on our market, and that is of an inferior quality. We do not look for any new before next month. We have quite a stock of extracted, both light and dark, on hand.

CHAS. MCCULLOCH & CO.,
July 2. Albany, N. Y.

PHILADELPHIA.—*Honey.*—Old comb honey mostly cleaned up. Odds and ends sold at any reasonable offer. Very little new in yet—not enough to establish a price, and will be no call till September. Extracted dark, 3½@4; amber, 4@4½; light, 5@5½. Prices will rule low; big crop everywhere. Beeswax, 25.

WM. A. SELSER,
July 10. 10 Vine St., Philadelphia, Pa.

MINNEAPOLIS.—*Honey.*—The demand for comb honey is very light, and prices more or less nominal. We quote choice white clover at 12@14; light amber, 8@10. Extracted in fair demand, and prices lower. Choice white clover, 5½@6; choice amber, 4½@5.

S. H. HALL & CO.,
July 10. Minneapolis, Minn.

DETROIT.—*Honey.*—New comb honey is being offered, and brings 10@11; old honey, 7@10; extracted, 4@6. Beeswax, 25@26.

M. H. HUNT,
July 7. Bell Branch, Mich.

NEW YORK.—*Honey.*—No comb honey on our market. Some demand for white comb at 10@11. Market on extracted rather weak. Demand slow of late, and arrivals plenty. Southern, average common grade, 50c per gallon; better grades, 55@60c per gallon; California, light amber, 4½@4¾c per lb.; white, 5@5¼. Beeswax remains steady at 26@27.

HILDRETH BROS. & SEGELKEN,
July 7. 120-122 W. Broadway, New York.

FOR SALE.—Fancy extracted in 60-lb. cans, and fancy comb (Danzy sections) mangrove honey in 30-lb. cases. Cash offers wanted, f. o. b. here.

H. PRICE WILLIAMS, Miami, Florida.

Honey Leaflet

Dr. C. C. Miller.

Why honey is more wholesome than cane sugar.

Honey as an article of diet; honey cooking recipes.

This leaflet is written for the benefit of consumers, and is put out at an extremely low price so that honey producers may distribute them free to their customers. Prices: 10, 5c; 100, 20c; 500, 75c; all postpaid; 1000, 75c, carriage extra.

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ORDERS filled by **return mail** for the choicest untested Italian queens at 60c each. Can furnish 1, 2, and 3 frame nuclei. A. I. ROOT COMPANY'S SUPPLIES. Send for 36 page catalog.

JOHN NEBEL & SON, High Hill, Mo.

What Has Been Told Lately

In the *Bee-keepers' Review?* did you ask? Well, in the Jan. issue Mr. Aspinwall explained a simple plan whereby the mating of queens at the home yard may be secured with almost *absolute certainty.* R. L. Taylor, in the February issue, describes an experiment made to determine if honey stored in the super of a foul-broody colony was infected with the germs of foul brood. In the March number, Isaac Lundy told "How to Get Drawn Combs right in the Sections, and Secure Comb Honey at the same Time." In the April issue, R. L. Taylor tells at what a high temperature he kept his bee-cellar last winter, and the results. The June issue contains a long article from Mr. Lundy, explaining his methods, and giving the details of a plan whereby he secures drawn combs during the white-honey harvest. Of course, there are other articles, editorial comments, extracts, notes from foreign bee-journals, Hasty's "View of Current Bee Literature," etc.

The *Review* is $1.00 a year; but for the sake of getting new subscribers I am offering it for 1897, and 1000 first-class sections, for only $2.50; or the *Review* and a Bingham Conqueror smoker for $1.75; or the *Review* and a fine tested Italian queen for only $1.50.

W. Z. HUTCHINSON, Flint, Mich.

Three Car Loads.

My third car of goods from The A. I. Root Co. has arrived, and I am prepared to fill orders for regular goods by next train at Root's prices. Send for my 36-page catalog, or send me a list of goods wanted and I will make you bottom prices.

GEO. E. HILTON,
Fremont, Mich.

Italian Queens, either golden beauties or 3-banded imported stock. Tested, 90c each; untested, 55c each; 6 for $3.00. One sample queen to new customer, 50c; breeders, $2.00 to $3.50 each. P. O. M. O. office, Lavaca. **E. A. SEELEY, Bloomer, Ark.**

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Shipping-cases, Winter Cases, Chaff Division-boards, etc., etc.

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Immense stock of the latest 1897 goods now on hand, and more to follow.

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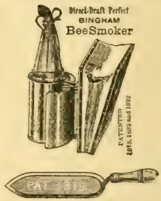
Bingham Perfect Bee-smokers and Honey-knives.

Smoke Engine (largest smoker made.)	4-in. stove.	Doz.,	$13.00;	each, by mail, $1.50
Doctor	3½ "	"	9.00;	" " 1.10
Conqueror	3 "	"	6.50;	" " 1.00
Large	2½ "	"	5.00;	" " .90
Plain	2 "	"	4.75;	" " .70
Little Wonder (wt. 10 oz.)	2 "	"	4.50;	" " .60
Honey-knife		"	6.00;	" " .80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer, I write for a circular. I do not think the 4-inch Smoke Engine too large.
January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



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A Penny Saved is a Penny Earned.

Yes, it's better than that, for the saved penny you don't have to earn twice. Well, the **Weekly American Bee Journal** will *help* you save your pennies. It is a real money-saver to the bee-keeper who will read and practice its teaching. The regular price is $1.00 a year, or only about two cents per copy. But in order that *new* readers may give it a trial we will send it **for only 50 cents from the time we receive your subscription to the end of 1897.** Now, the sooner you send the half dollar, the more copies you will receive. Send 1c stamps if more convenient. Sample copy free.

GEORGE W. YORK & CO., 118 Michigan St., Chicago, Ill.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO.

Vol. XXV. JULY 15, 1897. No. 14.

STRAY STRAWS
FROM DR. C. C. MILLER.

PLEASE, Messrs. A. I. Root Co., don't bring a live *Apis dorsata* into this country until you *know* they can be domesticated. [You need have no fears on that score.—ED.]

MANY REPORT honey coming in well, especially in white-clover regions, but figures in Honey Column are not very encouraging. Still, I'd rather have big crop with little price than little crop with big price.

BEE WORK crowds so that I had to get up at 3 this morning to finish these Straws. [I have thought, doctor, that you seemed to be quite busy; but you are rather reticent as to whether or not you are getting honey. I suspect you are.—ED.]

IN GRADING honey, is there any need of demanding that *both* sides of a section be immaculately white in order to take highest grading? When on the table, if the upper side is white, does it matter if the other side be darkened?

AFTER-SWARMS, Isaac Lundy says, in *Review*, he prevents by putting a cone escape on the mother colony. Why not? If no bees are allowed to enter the hive about the time the young queen emerges, but are compelled by the escape to join the swarm, the destruction of the other queens may be relied upon.

E. H. SCHAEFFLE finds that bottom starters have a bad habit of curling over—p. 486. If top and bottom starter are only ¼ inch apart, the bees fasten them together the first thing, and that prevents curling. [Bottom starters had a fashion of curling over for us last year. It is possible we made them too wide. Ours were about ½ inch.—ED.]

PROBABLY it will be the best way for foundation-makers to paper foundation unless ordered otherwise, but I think it will be economy, for us Northerners at least, to order all foundation unpapered. [If our customers will specify whether they want their foundation papered or unpapered we shall be very glad to comply with their wishes, whichever way they may choose.—ED.]

IF THE FIGURES on p. 487 are correct, it's necessary to make our bees' tongues only one-ninth longer to bring them up to dorsata. It ought not to be so very hard to accomplish that, seeing there is considerable difference in different colonies. [It only goes to show how ridiculous are the claims that *Apis dorsata* would have tongues so much longer that they could reach into flora that our own bees could not.—ED.]

NOW WE HAVE the Medina mark—1000 sections folded in 40 minutes, and 1000 starters put in in 2 hours. Common people who reach the half of that may be well satisfied. One thing that helps the starter business in Medina is that small starters are used and the sections *thrown* into a basket. With full starters they should be placed directly in the supers—don't know but they ought to anyway—and that takes more time.

E. E. HASTY ought to be drummed out of the regiment—always raising troublesome questions. In *Review* he goes on after this fashion: "Is it not usually the case with any sample of honey, that its flavor is the joint result of two flavors—one secreted by the plant and one contributed by the bee? Is it not possible that most of the flavoring contributed by the plant is taken out of the nectar the day it is brought in, and stored in the bodies of the bees, and restored later on in a somewhat altered and less volatile form?"

L. A. ASPINWALL thinks the chief cause of swarming an abundance of bees of all ages, with the following as adjunct factors: "Temperature, ventilation, drones, pollen, honey, the influence of a honey-yield extending into a failure of the honey sources, the swarming-impulse, the inherent tendency, and, lastly, that under the circumstances of supersedure."—*Review*. [The sentence containing the "adjunct factors" is, it seems to me, a little involved—at least I do not clearly understand what is meant, although I think he is trying to tell us what we already knew.—ED.]

A DISCOVERY is reported in the *Australian Bee Bulletin*, in prevention of swarming. Just turn the hive upside down once in nine days, and the bees will destroy the queen-cells. The *Bulletin* may save its readers much disappointment by saying that the same discovery was made in this country several years ago, and, after extensive trial, it proved a failure. Bees don't always destroy the cells, and, besides, they often swarm with only eggs in queen-cells.

I MUST PUT IN just a word for Punics. You say, Mr. Editor, they have hardly a redeeming quality; but from my limited experience the one redeeming quality is an important one. They're great workers; and if I were working for extracted honey I shouldn't object to some of the blood in my apiary. But they couldn't be tolerated for comb honey on account of filling the cells so full as to make the combs look watery. [I said, doctor, that they had hardly a redeeming quality. They may be a little better than the average Italians or hybrids, for extracted honey, but I doubt very much whether they are. Their bad qualities put them considerably behind in the race with other bees.—ED.]

IT IS TRUE, Mr. Editor, as you say, that "the general run of customers do not take kindly to candied honey." But that leaves it still an open question whether it might not be best for producer and consumer that they should be educated to it. Muth's experience is not on paper. Better sell granulated honey to a man taught what to do with it than to sell liquid honey to a man who doesn't know what to do with it when it candies on his hands. [There may be some truth in what you say; but it is uphill work to educate the public. Most of the bee-keepers and dealers with whom I am acquainted seem to have come to the conclusion that it is better to keep honey liquid as long as possible; and when it candies, exchange it for liquid. —ED.]

DAVID N. RITCHEY feels sure *Apis dorsata* can be domesticated, and that they should at once be imported to test the matter of their acclimatization. *If* their domestication is established, no one will object to their introduction. What I object to is their introduction before we know they can be domesticated. [It looks to me, in view of what was published on pages 487, 488, from the pens of those who have been in the native homes of the dorsata, that it is exceedingly doubtful whether they could ever be domesticated. But, nevertheless, GLEANINGS desires Mr. Rambo to give the matter a test when he returns to his missionary labors. In view of this, speculation from those who are not personally acquainted with *A. dorsata* in their native climate is worse than useless.—ED.]

"BEE-KEEPERS," says Editor Hutchinson, "have one bad habit. If they agree with their editor they write and pat him on the back. If they don't agree with him they keep still. They ought to write to him just the same, if they don't agree with him." All of which is more or less true. But, say, W. Z., some editors have a bad habit. They'll publish only what's written them on *their* side. [Yes, both subscribers and editors are quite inclined to believe the way they *want* to believe. The subscriber is too much inclined to write to the editor agreeing with him; and the naughty editor is very much inclined to publish that side of a question which accords with his views, or, perhaps, more exactly, his *prejudice*. I believe I am as human as anybody else; but I have often tried, to give greater emphasis to the side that is opposed to my own opinions.—ED.]

THE *American Bee Journal* is now faithfully working on the report of the St. Joe convention that got water-logged more than two years ago. The last five numbers have been occupied with Frank Benton's essay on honey-plants, which has grown so much in two years that it now fills about six pages of the Old Reliable. It is, perhaps, the fullest thing of the kind ever written. [Yes, it is no doubt the fullest; but very often I have seen a long list of honey-plants, all of which have practically no bearing at all on the honey market, and the reader is led to believe that they all yield honey to a considerable extent. The honey-plants of importance in this country can almost be counted upon the fingers on one hand. It seemed to me, as I glanced over Mr. Benton's essay, that he was giving the unimportant ones almost as much prominence as the others. —ED.]

Ridge-Pole Musings

By R. C. Aikin.

ALFALFA HONEY; ITS GRANULATING QUALITIES; A REPLY TO E. T. ABBOTT AND F. L. THOMPSON.

Mr. Editor:— I had not intended writing any thing more in regard to the granulation of alfalfa honey; but it seems to me that, while Messrs. Abbott and Thompson are thumping me, may be I had better hit back a little.

Now turn again to page 115 and see what I said about it: "Now, while the body, color, and flavor are excellent, there is one feature that is against it; and that is its tendency to granulate. Alfalfa comb honey, as a rule, will not keep over winter without granulating to some extent, both in brood combs and in sections.

I suppose Mr. Abbott's article was intended to show that I misrepresented, more or less, alfalfa honey. That he utterly failed in this, I shall prove by his own words. The first sentence in the third paragraph of Mr. Abbott's article, page 321, admits every thing I said, for it reads: "I know that, generally speaking, alfalfa honey granulates very quickly; but I am inclined to think that this is due more to the way the honey is handled than to any inherent tendency in the nectar of the alfalfa-plant."

I said it has a "tendency to granulate," referring to *alfalfa honey*, then qualified as to *comb honey*, by saying, "as a rule, will not keep over winter without granulating to *some extent*." Is not that both "generally speaking," and qualifiedly too? The italics I have supplied here. Further, Mr. A. did not know what he was talking about when he intimates that it is "the way the honey is handled" that causes its granulation. More light on this farther along.

Let me quote Mr. Abbott again: "I am also of the opinion that the tendency to granulate is due to a lack of 'body.'" Throughout the article he intimates that producers of alfalfa take unripe honey. In closing his third paragraph he says, "I incline to the opinion that the great tendency to granulate shown by extracted alfalfa honey is due to improper manipulation, and I would advise the other extracted-honey producers of Colorado to take a few lessons from Mr. Foster, and to work for quality rather than quantity, and then they will not say that all alfalfa honey will granulate in a short time. I know from experience that it will not."

Now, Mr. Abbott, just tell me who said, and where, that *all* alfalfa honey granulates, even in a *long* time? I wonder, too, if Mr. Foster's letter, which I quote hereinafter, will not throw some light on your "experience" whereby you "know" about these matters. Friend Abbott, before I leave you just let me ask you how many tons of alfalfa honey have you handled? what per cent did not granulate? was it *heated* after being extracted?

Mr. F. L. Thompson asks a few questions, pages 321, 322, which I will answer. Referring to granulation he asks: "Is it not true that there is a marked difference between early and late honey in this respect?" Yes, there is a difference. The early honey seems thicker, and does not granulate nearly so much in the comb, but does granulate when extracted. My experience with comb (section), kept over winter, is that a small per cent will granulate. I have never kept more than a small amount, always dry but not warm.

The rest of your questions I can not fully answer; but in a general way I will say that my *opinion* is that straight alfalfa comb, kept as 99 out of every 100 bee-keepers or merchants would keep it, would granulate from 5 to 20 per cent. The cells would not become solid, but be a mixture of granules and liquid. My extracted always granulates, and so does all alfalfa extracted I have ever seen. One year there was a flow from red and alsike clover right at the start, and this honey did not granulate so solid as that a few days later, after the clover was cut down.

In order to be more certain, and that others besides myself might testify, I have sent out the following list of questions to a number of apiarists:

1. How quickly, and what per cent of your extracted alfalfa honey granulates?
2. What per cent of your alfalfa comb honey granulates if kept over winter?
3. Do the winter stores in the brood-combs granulate, and to what extent?
4. In the matter of granulation, how does alfalfa compare with other honeys?

Mr. Oliver Foster, Las Animas, Colo., replied somewhat in detail. He has given me his consent to use any part of his letter in print that I may wish, so I am going to use it all. I know that friend Abbott will want a lesson or two from it. Here is his letter:

> In reply to your questions of the 22d, I have read with interest your article on the granulation of alfalfa honey, and also that of my friend Abbott. I think you are both in a measure right. My alfalfa honey, both comb and extracted, does, as a rule, granulate, but it does not seem to be confined to rule. Comb honey does not granulate until late in the winter, and then it does not get very hard unless honey has been previously extracted from the comb. I do not think my extracted alfalfa honey granulates sooner than basswood, clover, and heartsease of Iowa. If it did. I should not consider that an objection unless it also granulated quickly after melting, which it does not, if properly melted and if it is well ripened. Alfalfa honey may be very thick and not ripe I think it can not be produced in perfect quality by ordinary methods. We use 40 to 45 L combs to the colony, and then heat the honey before and after extracting to get it out, and through a fine muslin strainer. After storing in 60-lb. cans we let it granulate as hard and as soon as it pleases. Just before shipping we melt it with a slow heat in a water bath. It takes 24 hours to melt honey properly. We leave the cap screwed on tight while melting.
>
> In answer to your questions: 1. Extracted alfalfa usually granulates at the approach of cool or cold weather; the time depends on season of extracting. Perhaps one to three per cent will not granulate at all; that is, of 100 1-lb. cans filled from the same lot, a few never granulate, whether having been heated or not. 2. I think about all alfalfa comb honey will granulate if kept over winter, unless it is kept in a very warm place—usually by Jan. 1.
>
> 3. The winter stores in brood-combs granulated last winter and three years ago to an extent affecting seriously the prosperity of many colonies; but I think it was owing to other than alfalfa honey.
>
> 4. In the matter of candying, alfalfa honey compares favorably with other honeys, except in the case of comb honey. OLIVER FOSTER.

Mr. D. S. Jenkins, also of Las Animas, replied, and I give his replies in abbreviated form, quotation-marks showing his own language:

1. "Comb honey (alfalfa), sealed before about the 4th of July, will keep over winter if kept in a warm place; but the same honey, if extracted, will granulate if not kept at a temperature of 145 to 150 degrees for about 24 hours. If the heat is applied as mentioned it will pass the winter and not granulate; but to start with the honey must be *well ripened;* otherwise it will granulate."

"I have samples of alfalfa extracted honey three years old that were heated, the samples being taken at 145 degrees, and each additional 5 degrees thereafter up to 190. The 145 to 165 granulated in about 68 days." The greater the degree of heat applied, the slower to granulate. "The 190 sample is not fully granulated yet. If Mr. Thompson will take a section of his fine comb honey that will not granulate through the winter, and pick the cappings off some of the cells and stir it with a pin, he will find that the cells so treated will granulate while the others will not."

2. "June comb honey, if kept in a warm room, will keep over winter; but if exposed to the cold I expect all of it to partly granulate."

3. "About 50 per cent."

4. Could not answer, experience being limited to alfalfa and cleome. "Some seasons worse than others." Gathered in damp cool weather it granulates worse than if gathered in hot dry weather.

Mr. W. L. Porter, North Denver, answered, and I give the gist of his replies:

1. "In 30 days, and sometimes sooner; cleome more slowly."

2. Had not observed closely, "but think 10 per cent on an average."

3. This question he did not answer in a general way, but says "winter stores are all granulated hard except in localities where cleome is abundant. I have cleome gathered two years ago in the brood-combs that is still liquid."

Mr. Porter has several apiaries. In regard to tendency to granulate, he puts sweet clover first, alfalfa second, and cleome third.

In 1889 I handled, from three apiaries, 12 tons of honey, principally alfalfa. In 1890 the crop was 12 tons. One year since, I produced 9 tons. The remaining years since 1890 have had from two to five tons each year, a total of over 40 tons in seven years, and about half and half comb and extracted. The comb has, all but a few cases, been marketed early, so I do not know how it kept. Of the extracted, about 99 per cent granulated, and nearly all inside of 30 days.

As to the body of this honey, it could not be extracted except warm from the hives, or by the application of heat. Many a time I have had to stop extracting because it would not pass through a 1¼-inch hole as fast as extracted in a two-frame machine, but filled up so the reel dragged in the honey. Mr. Foster says, "Alfalfa honey may be very thick and not ripe. I think it can not be produced in perfect quality by ordinary methods." I know no reason why not ripe if thick. I know the *flavor* of all honeys changes somewhat as they get older, but I understand the term "ripe" to apply to consistency, in its general meaning as applied to honey. I do not consider *any* honey of "perfect quality" produced by ordinary methods. An apiarist of large experience in the east has often told me that, in Colorado's dry climate, it was altogether unnecessary to wait for the honey to be sealed. I want mine sealed, or largely so.

I have before me samples of honey. First is one of white clover 13 years old. It was never heated, but granulated solid, and stayed so for two or three years, then gradually liquefied until about one-half liquid, where it remains unchanged. It has become about as dark as light sorghum molasses.

Next is a sample of alfalfa eight years old. This was solid for over a year, then became about one-fourth liquid, and remains so. Its liquid portion has become slightly amber in color. It was never heated.

Next is alfalfa five years old, once heated to liquefy. I do not know the degree of heat, but just enough to melt it. This soon granulated again, and is now about five-sixths granules.

I also have a sample three years old, never heated, but put into glass when extracted, and it is apparently *all* solid, and has remained so. This has not even been in a warm room. The first and second samples mentioned were at times in a warm place—one near a stove, the other in the gable of the honey-house. The heat helped to partially liquefy.

I have also a sample three years old, once liquefied, that has gradually granulated, till now it is about one-half to two-thirds granules. The last sample I have is two years old, liquefied by heat, and is now about nine-tenths liquid.

One thing is very noticeable in these samples: The honey in those to which heat was applied, when it does again become solid, is more strictly granules mixed with the liquid portion; but that which was never heated forms a body almost like lard, and quite firm.

I have liquefied tons of honey, but never tested the degree of heat necessary. This is one of the things I have planned to do, but as yet have never found time. I am scarcely an able-bodied man, but must earn my living, so I find it hard to do all the experimental work I wish. Time and money, properly applied, would soon settle many disputed points. Observing, however, as I go along, I have come to the conclusion that a low degree of heat, say but little above 100 F., if applied for several days and continuously till the whole mass of honey is thoroughly heated and liquid, will do the work all right without injuring the color or flavor. By stove, where the heat is irregular (in water bath), I have never succeeded in liquefying so it would long stay liquid, unless it became so hot as to injure color and flavor, unless I continued the heat for 24 to 48 hours.

But I am drifting from my topic, and must return and bring this to a close. I must admit that my experience with other honeys than alfalfa is quite limited. I have produced some little basswood, a very little mustard, and considerable white-clover, heartsease, and Spanish-needle. I never carried a stock of comb very long, and do not remember to have had any of these granulate; but the extracted did granulate more or less, though none of it so quickly as does the honey here.

My sources here are alfalfa for 75 to 90 per cent, the rest being about equally divided between sweet clover and cleome. I did have some red clover, but it is about all gone now.

I think the time is very near when extracted honey will be marketed granulated, such as will granulate; and if it does become solid it will be no detriment—rather a help. If it is true that other honeys in the comb will granulate as freely as alfalfa, then the latter is sure to take the lead, for its color and flavor will find it a market. I once sent a sample of alfalfa extracted to a Chicago firm who are very extensive honey-dealers, and they said it was "without question the finest sample of extracted they had ever seen." This had been melted before sending, but was of the honey friend Abbott wants improved upon.

Must Colorado apiarists use exceptional methods that are not required by Missouri producers? No, friend Abbott; if we must use other than "ordinary methods," as Mr. Foster does, to get honey that will not granulate, it but proves my statements.

Usually the first honey gathered—that supposed to have the least tendency to granulate—is stored in the brood-combs. How comes it, then, that so much of it granulates? The first stored in brood-combs is the last to be used from them, yet we find a large per cent of this granulated.

Loveland, Colo.

THE ADVANTAGE OF NARROW BOTTOM-BARS.

OSBORN'S COMB-CARRYING CART—OBJECTIONS TO IT.

By O. O. Poppleton.

Nearly a year ago, Dr. Miller, in one of his Straws, asked any bee-keeper, who preferred and used narrow bottom-bars, to give the reasons for his preference. I intended to answer at the time, but it was overlooked.

Unless combs are entirely built down on to the bottom-bars, spaces will be left between the comb and bottom-bars These spaces above wide bottom-bars are much more trouble to brush bees out of than when narrow bars are used. This, of course, applies to the production of extracted honey much more than when working for comb honey, and to me it is a very important point.

Theoretically, end-bars of frames should always hang in a hive a bee-space away from the sides of the hive, and never be fastened by the bees to the sides; but practically I have never seen that condition. Frames will sometimes get a little out of true; the sides of the hive may get a trifle warped, or something else not just right will diminish this bee space, and the bees will fasten frame and hive together with a mass of propolis. This makes extra work, costs time, is a draft on one's stock of patience, and a general nuisance.

There are several ways in use for remedying this, but I do it with my narrow bottom-bars, which are about $\frac{3}{16}$ x $\frac{3}{8}$ inch, a trifle longer than the made-up frame is long, and ends sharpened. These are not nailed on the bottom of the end-bars, but inserted in a kerf sawed in the lower ends of the end-bars, and allowed to project enough beyond the bars to keep them a proper distance from the sides of the hive. The use of these projecting bottom-bars enables one to handle frames more rapidly than otherwise, as they can be taken hold of with one hand, near the middle of the frame, and lifted out quickly and carelessly, with no danger of crushing bees between the end of the frame and the hive. Mr. John Bird, of Bradford, Ia., one of the most experienced and successful bee-keepers in the Northwest, told me last fall that he considered the projecting bottom-bars as one of the most indispensable features of good frames, because of the aid they give to rapid handling. He uses the Langstroth frame. He also told me that he values the narrow bottom-bars for another reason. Nearly every one who has wintered bees in the North knows how the accumulation of dead bees on or near the bottom of hives during long confinement in a cellar causes moldy combs. This can be mostly remedied by occasionally dragging the dead bees out with a bent wire—that is, if the wide bottom-bars of frames don't catch and hold the bees off the bottom-board. Narrow bottom-bars, of course, allow the dead bees to collect where the apiarist can easily prevent any undue accumulation.

On p. 336 of GLEANINGS for May 1st you picture a wheelbarrow for carrying combs of honey, and refer in your footnote to the cart used by Mr. Osborn, in Cuba. I used his cart long enough to learn it had several faults. One was its being so low down that it was very back-aching work to handle combs to and from steadily all day. Another was that the combs run crosswise instead of from front to rear, and that caused more or less mashing of the combs against each other. Another trouble was the greater difficulty of keeping such a large box covered up from robbers. I prefer two or three smaller comb-boxes, holding the same number of combs in the aggregate, higher up from the ground, and with combs running from front to rear.

Stuart, Fla., June 5.

[Three or four years ago we started making the bottom-bars of all of our frames ⅜ square, and personally I was much pleased with the results secured from them in our own apiary; but our customers protested. Finally we compromised by making a bottom-bar ¾ inch wide instead of ⅞, as formerly. The only objection that can be named against the use of narrow bars is that the bees will sometimes build the comb clear past the bar, and attach it to the frame below. This applies only to where the hives are tiered up. Only yesterday (June 25) I was looking at some beautiful solid combs built clear to the bottom-bar. These bars were ⅜ inch square: and in only a few cases are the combs built down to the bottom-bars ¾ by ¼ inch. I am half inclined to believe our customers didn't know what they wanted.

The idea of having a bottom-bar project past the end-bars a trifle was used by D. A. Jones away back in 1879 or '80. I know that, at the time I visited him in 1882, he was very enthusiastic over this feature, and wondered why we didn't incorporate it in our apiary. The fact of the matter is, the supply-dealer does not dare to deviate very much from standard accepted lines or he will hear a buzzing, not of bees, but of bee-keepers, around his ears.

Your objections to the Osborn comb cart, I should say, are very well taken. A good cart for carrying combs is yet to be devised. I have thought that a cart might be made having two or three closed compartments, each compartment holding ten or twelve combs, and having lids that will close absolutely bee-tight. This cart should be high enough to prevent back-breaking stooping, and so arranged as to distribute the load on both sides of the axletree. After all, I am not sure but a light wheelbarrow, having on it three ordinary bee-tight hives, would be nearly as good. If, instead of the hives, boxes of the same dimensions made of ¼-inch stuff were used, it would make the load a little lighter.—ED.]

LARD-CANS FOR EXTRACTED HONEY, ESPECIALLY FOR THE COLORADO MARKET.

A REGULAR UNIFORM PACKAGE INDORSED; BUT SOLDERED CANS NOT AS DESIRABLE AS THE STANDARD PAILS THAT WILL NEST.

By Mrs. A. J. Barber.

Editor Gleanings:—In your footnote to Mr. Aikin's excellent article you ask for the opinions of the brethren on the honey package question. I take the liberty (as ours is an equal-rights State) to give mine. The uniform package and trademark system is, no doubt, a good one, and I hope to see it carried out; but I want to enter a protest against the soldered cans.

To begin with, I do not see the necessity for sealing at all. Colorado honey granulates so quickly that it is safe for any length of time in tin pails with close-fitting covers. We have sold thousands of pounds of extracted honey in the common lard-pails. The five-pound size holds 7½ lbs., and the 3-lb. size 5 lbs. Being a standard article, and manufactured by thousands, they come cheap. As they can be nested they take up less room than straight cans, and we get better freight rates on them. The bail or handle makes the pail a more convenient package to handle than a can, and the pail is useful after the honey has been used up. The pails are easier filled and covered than cans that have to be soldered. The pails can be crated as easily as cans. We use 40-lb. apple-boxes. Such a box holds one dozen pails—six of each size. We have used them for two years, and have never had any fault to find with such a crate. It makes a neat package, and holds the pails securely, and is easily handled. Last year we sold several thousand pounds of granulated honey in such pails and crates, and have not had a single complaint, though the honey has been in all the mining towns in this part of the country. I believe it is a mistake to try to keep Colorado honey on the market in liquid form. Any one who knows any thing about this climate knows that honey always granulates quickly here; then why not face the situation squarely, and teach people that granulation is a test of the honey's purity. A neat label on every package, stating the fact, and giving directions for liquefying, will soon do the business.

To sum up: I claim that the pails have these advantages over the soldered cans: They are cheaper, and freight is less, as they come nested. They are much easier and quicker to fill and cover. They are handier for the buyer and seller also, as they have a handle to carry them by. They can be opened for inspection or trial, without injuring or defacing the pail. The vessel is useful after the honey is all used up. You can store a thousand of them in less space than five hundred straight cans would occupy, and you can get them from any wholesale hardware house by simply ordering three and five pound lard-pails instead of having to give a description of cans, and waiting for them to be made.

Now, having presented the case for the lard-pails I should like to hear what the advantages of the straight cans are, if any, over the pails.

Mancos, Col.

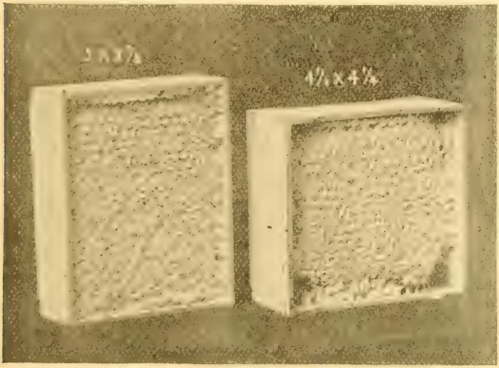
[The lard-cans that you recommend have long been used by the Dadants; in fact, that is their standard package for extracted honey when put up in a small way. The fact that these pails will nest together is a big point in their favor; but sometimes the honey will not candy solid. This is especially true of some honeys and some localities; and in some markets partially candied honey will sell at a great discount. Then, again, it is sometimes desirable to make immediate shipments of extracted honey. If you had an order for a carload of extracted honey put up in lard-cans for immediate delivery, just as the honey came from the hives, it might be a problem as to how you would get this to a distant market without a good deal of leakage. Then, too, a package that is easily opened is liable to be tampered with by naughty boys and freight-handlers *en route*. The standard fruit-can package soldered tight will go safely, whether candied or not. Honey put up in these cans could be shipped immediately. Where honey is put up in nested pails it ought to wait till it is candied before it it is ready for market.—Ed.]

HONEY IN THE DANZENBAKER SECTIONS.

THE OPINION OF THE MAJORITY NOT ALWAYS RIGHT.

By B. F. Onderdonk.

Mr. Root:—The 1000 "Danzy" sections came to hand, and are highly satisfactory; the change in width of bottom and top adding one-eighth will help the appearance of the finished section, and make the weight, when filled, a plump pound. I notice the bees this year draw the combs beyond the wood at the bottom of last year's sections, so the glass presses on the honey. I have taken off three supers of Danzy sections so far, and the lightest weighed 14½ oz.: heaviest, 16¼ oz.; but the majority weigh plump 15 oz. I sell all I can produce, at 20 cts. each; the 4¼x1⅝ at 15 cts. If you look in the *American Bee Journal*, p. 378, under "Question-box," Prov. 11: 14, you will wonder how scripture texts can be twisted to suit the views of fossils. Captain Hetherington ordered 50,000 cartons for tall sections from one house in New York, and yet out of 22 experts only three in the aforesaid Question-box favor tall sections; and one of them, Rev. M. Mahin, says: "But I am not sure but that, if I used another style of hive, I should prefer 4½x4½x2," doubtless meaning what is arbitrarily styled the standard section.



I know little about bee-keeping. I am an amateur of two years' practice, commencing in May, 1895, with three colonies, and, buying one nucleus of Carniolans, have increased to 30 colonies at this date; but when I see the Danzenbaker section filled solid to the wood all round—sides, top, and bottom, while my 4¼ sections have passageways through each lower corner, and even the whole bottom open, I feel a Christian regret for the experts, and rather hope to die an amateur.

By the way, I have always looked upon the tin strips on super bottoms, to hold the sections, as an abomination, and have found a way out. I drive carpet-staples ¾ inch into the end-bars of holders, and hang them in the rabbets, using a device like the "dividers" one of our friends writes about on one side, and ¼-inch strips on the other. The bee-space all around seems a great comfort to the bees.

Mountain View, N. J., June 29.

[We have before had reports from those who have been using the 4x5 sections and the 4¼. The former, in nearly every case, I think, sold for a higher price in the open market. Whether this difference was owing to this fact that the 4x5 looked larger by *contrast* than the square ones and therefore brought more money, or whether the oblong shape is really more desirable even when alone, is hard to say. If the 4x5 sells at a higher price because of the more pleasing contrast, then when the square sections are crowded out of the market I am of the opinion that the 4x5 would seek the same level in price as the 4¼. In the cut both sections weigh the same. Which one *looks* the bigger?—Ed.]

HONEY AS FOOD.

ITS VALUE MUST BE MORE GENERALLY MADE KNOWN.

By F. A. Snell.

There is no doubt as to the great value of honey as food and the purest sweet known. Honey strengthens and invigorates the whole system, and acts as a regulator. Honey is easily digested and assimilated, and can be eaten by people suffering from some diseases where sugar would not be allowed by a well-read physician to a patient under his care, so afflicted. For throat, lung, or bronchial trouble it is highly beneficial, and has prolonged the life of many so suffering who have used it. In case of sore throat I have found half a teaspoonful of honey, taken at intervals of fifteen or twenty minutes, very soothing.

Its healing properties are great. Honey for ages was the only sweet used; and its usefulness was well realized. At present its use has been too much superseded by that of sugar and the vile glucose syrups sold at the groceries, and bought by people who think it cheap, when in fact it is dear if health is at all considered. The people must be educated, and bee-keepers have this work to do if it is done; and it must be, as with our increase in production we as apiarists will see lower prices than we have yet, and we all know now, counting the seasons as they come, that it is hard work to make ends meet at the end of the year.

In looking back over past years I can not but think of former prices and those prevailing at present. Comb honey I readily sold at 25 cents per pound in 25-pound boxes; later, in two-pound sections, 20 cents. These prices were for 100 lbs. or over. Our first extracted honey sold at wholesale at 20, 18, and 15 cts. per lb.; and later it has been going lower and lower. Now, what can we do to help ourselves? I think we must all work to increase the consumption of our honey, and unite as one man in a noble effort to stop the infamous adulteration of it, and all enemies who rob us of our legitimate and deserved rights should be thoroughly dealt with.

I have been among bees since I can first remember, and personally engaged in the bee business 39 years, and I have not in the past known of a time when energy, push, and united effort were so much needed as now—energy in educating the people; push, to sell our honey for the best price possible under present conditions; united effort in bringing adulterators and thieving commission firms to justice. In fact, our whole business of the disposal of our honey in distant markets needs systematizing—not in one section, but over the whole country. More money has been lost by bee-keepers through commission frauds during the past year than ever before. Bee-keepers, many of them, have shown lack of judgment in shipping to unknown parties, or those condemned by some of our bee-journals. I too have been caught by a few of them, and lost over $150, but not for the few years just past.

There is no lack of work for us to do, and we should act for our just rights and best interests as a band of brothers.

Milledgeville, Ill.

[The way to educate the masses as to the value of honey as a food and medicine is to supply your customers with honey-leaflets. They should be distributed freely, and along with them should be a circular or card, to the effect that you or some local grocer has the honey for sale. And, by the way, I would see that the grocers are all supplied with honey-leaflets to distribute to their customers. Instruct them to wrap a leaflet in every package of honey that they put up; and if they read the leaflet, in all probability they will want to buy more.—ED.]

THE HOUSE APIARY.

ANOTHER HOUSE-APIARY ON THE PLAN OF THAT USED BY F. A. SALISBURY.

By Dr. J. Q. Mulford.

After reading friend Salisbury's article, page 662, 1895, I immediately contracted the house-apiary fever; but the bees had done so poorly for the two previous seasons that I did not feel like adding on the extra expense. In riding by the Shakers, a sect that live some two miles west, I noticed an old bee-house in which I had done some work in transferring some two years before, and I remember of thinking at the time how foolish in them to keep bees in a house. I was over the fence in a jiffy, and the first thing that attracted my attention was the entrance of those old box hives painted different colors, *a la* Salisbury. Instantly the thought came, "If I had been observant when I was working there, instead of feeling in a ridiculing mood, I might have been the first to tell the bee-keeping fraternity that bees *do* distinguish color.

I at once made some inquiry concerning the bee-keeper, but was informed that some ten years had elapsed since he had been heard of; but the house had been built 20 years before on the same plan as friend Salisbury's, excepting it is not quite so high, and is only 8 feet wide and 30 feet long. I hope no one will accuse me of trying to rob friend S. of the priority of making the house-apiary a success. I am only anxious to show that there is nothing new in the plan.

I hunted up the old doctor who had charge of affairs; and as he wanted strawberry-plants as much as I needed the bee-house, we soon made a trade. I put the house on trucks, and moved it home. The first question that troubled me was, which way to set it—east and west or north and south. After puzzling over the question for some time I decided on northwest and southeast. The next question that troubled me was, how to get the bees into the house. I left them on their summer stands until they had been confined there some three weeks by a cold spell, then moved them in. I am sure quite a number were lost during the first flight; but after that they seemed to get their hives all right. I am highly pleased with the house, and find the feeding-arrangement one of the handiest I have ever seen.

For spring I like best to take the can of syrup and walk along and pour the grooves full. You will be surprised at the amount those grooves will hold.

I am quite sure that a ventilated bottom is as great an invention as the feeder. I did not get all the new bottoms on when I moved the bees in; and during one of our very warm days I noticed the bees of one colony were hanging around the front of the hive, and were fanning as though they were rather uncomfortable. The next morning I put a ventilated bottom under them, and they have been comfortable ever since. Friend S. writes me that he leaves the same bottoms on during summer and winter.

Now I suppose every one who has bees thinks he must have a house for them; and as there has been so much said in its praise he thinks there is no chance of there being any objections; but I find there is one, and a very serious one too.

Often, in the early spring, the sun shines brightly in the morning, and gives promise of being a beautiful day. The bees sally forth. Some return heavy laden, miss the entrance, and drop to the ground. Those on the east side soon rest, and, taking wing, enter the hive; those on the west side at once become chilled, and, if the day should happen to turn cloudy, they are lost. Those on the east, after 4 P. M. encounter the same difficulty; and if they are not helped into the hives they will surely perish. I have picked up a pint of these bees at a time, and poured them into the first hive I came to, hoping in that way to save them.

A house running east and west would be very objectionable on account of the sun never reaching the north side. The best plan would be a house facing southwest, and bees all on one side.

I am highly pleased with my house, and would not go back to the old way of having them scattered all over the yard, under any consideration. While working with them this morning a shower came up; but I continued the work just as well as if it had not been raining. How often, under just such circumstances, do I remember of hastily scrambling my tools together in order to seek shelter!

As to wintering, I am sure the house will be ahead of leaving out of doors. I lost 10 colonies out of 60; but that was due to my starving them by feeding them candy made after the instructions given in the A B C and GLEANINGS. I have succeeded in studying out a plan that is a success, and will report at some future time.

I am using the poultry-wire staples for end-spacers on my frames, and think very well of them at present. I get them at the hardware store for 10 cts. per lb.

Lebanon, Ohio.

[However near the house-apiary you now have (and which was built twenty years ago) may be like the one now used by friend Salisbury, I am sure he was entirely original in the planning of the general design of the one which he has. It only goes to show that the old Shaker and Mr. Salisbury, realizing some of the defects of the former house-apiaries, set about to remedy them by making one that would not have these faults; and that their minds ran in the same channel is nothing very significant, as many another pair of great minds have done the same thing.

In view of the fact that our bees at the basswood apiary have been tampered with by thieves, and in view of the further fact that we have no building in which to store tools, we expect this fall to put up a modern house-apiary, *a la* Salisbury, at the basswood yard. The structure will be strongly built, and have a good bar and padlock to secure the door or doors. When I visit Mr. Salisbury this summer I expect to take special note of his house-apiary; and if he knows of any faults, we shall, of course, remedy them, so far as possible, in our new structure.—ED.]

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

DRONE COMB.

Question.—Can you tell me why my bees build so much drone comb? In hiving my swarms I give them one or two combs already built to help them start in their new home, and I find, on opening the hives a few days afterward, that from one-half to two-thirds of the comb they build is of the drone size of cells. Can you tell me how I can prevent this?

Answer.—Yes, it is easily told. Put in full frames of nice worker comb, filling the hive full; or fill every frame set in any hive full of foundation. See how easy it is! But I am reminded that you may not want to use foundation, or have not the full worker combs on hand, so I will give a few words on comb-building, in which you may possibly find a solution to your difficulty.

All observing apiarists know that, as the day of swarming draws near, the queen ceases her prolificness, so as to be able to fly and go with the swarm, so that, when the swarming does occur, the old mother-queen is scarcely larger than a virgin queen. Nature has so ordained things for two reasons, the first of which is that the queen may fly; for if a queen is taken from a colony when she is most prolific in eggs she can not fly at all, as she is so heavy with eggs. The second reason is, that the queen need not be inconvenienced with an over-accumulation of eggs before there is time for the bees to construct comb in the new home for her to deposit her eggs in; and so we find that all good queens do not become fully prolific again until about a week has elapsed after the new colony has arrived at its new location.

During this week comb has been built very rapidly, especially if honey is coming in plentifully from the fields, while the queen has not been able to keep up with the workers; the result of which is that the bees commence to build store comb, which is always of the drone size of cells. This comb is mainly filled with honey the first season (although in many cases some drone brood is found if the bees feel disposed to think of swarming again, or feel disposed to supersede their queen, or the honey-flow slackens somewhat), the main trouble coming by having this store comb filled with drone brood after the bees have consumed the honey from these combs the next spring. Why I said good laying queens, is because some seem to think that no drone comb is built under any circumstances with newly hived swarms, unless the queen is old or beginning to fail.

Now, if we give a frame of comb or two to a newly hived prime swarm, as our questioner did, we make matters doubly worse, in that we furnish a place for the queen to deposit nearly all the eggs she would naturally lay during the first week after hiving, consequently nearly or all the comb built by the bees during this time will be for store comb, or of the drone size of cell, as the queen had furnished for her all the room in which to lay that she needs.

In the above we have the reason why bees build drone comb for the majority of bee-keepers.

Now, how is such a state of affairs to be avoided? The way I manage is to give the colonies which are to build comb a brood-chamber of only about half the size of the one from which the swarm came, this smaller size being made by contracting the chamber of the new hive to the size I wish, by means of dummies or division-boards, and also giving them a part of the section or surplus room at the time of hiving them. Where a queen-excluder is used, some of the sections should have in them partly built combs left over from the previous season, and the others supplied with thin comb foundation. Unless a queen-excluder is used, where no comb or foundation is used in the brood-chamber, the queen may go up and deposit eggs in the drawn comb which is in the sections. Preparing the hive in this way gives the bees plenty of room above to store honey, thus not crowding them in the brood-chamber, so that only comb of the worker size is built below, and that only as fast as the prolificness of the queen demands it. As her ability to lay increases, more comb is built; so that, at the end of the season, we have the hive filled with nice worker comb and plenty of section honey.

By the above plan three important items are secured—lots of section honey, no drone comb, and a hive full of nice straight worker comb; and as these latter will, with careful usage, last nearly a lifetime, it well pays to spend a little time on them while they are being built. I hope those who are troubled with too much drone comb in the body of the hive, and those who do not wish to fill their frames with foundation, will try this plan, on a few colonies at least; for if it works as well with others as it does with me it will be quite a saving to them, both in vexation and in not raising a host of useless drones to eat up the honey which the industrious little workers gather. Of course, all of the above is applicable to only those swarms which have laying queens with them, and does not apply at all to after-swarms or those having virgin queens. With colonies having virgin queens there seems to be no disposition to build drone comb, unless the swarm should be so large that comb is built two or three combs away from where there is any brood, in which case a little drone comb may be built. Nor is there much drone comb built in the old colony after their young queen gets to laying, because, when an old colony gets such a queen, instinct teaches them that they may expect this queen to meet all requirements of a mother-bee for the rest of the season; while drones are necessary only when a change of mothers is contemplated by the bees. Hence no eggs are deposited in drone comb, even where such is already built in the hive, and much less is comb built for this purpose. Taking advantage of this fact I often manage to get one or two nice perfect worker combs built for future use, while the bees of these colonies are at work vigorously in the sections, by taking one or two full combs of honey from the outside (storing it away for feeding-purposes should any colony lack in the fall or spring), and inserting empty frames in the center of the brood-nest of colonies which have cast a swarm, and now have a young laying queen. These frames are filled, apparently, without the cost of any section honey, while it seems to give great energy to the colony so building comb. I also place on these last-named colonies having young queens, all sections (if I have such) containing drone comb, where they are filled without danger of drone brood in them, while much drone brood in sections often confronts the apiarist if such sections are used over prime swarms where no queen-excluders are used. Before I used this plan, and previously to the advent of thin worker foundation and queen-excluders, I was often vexed upon finding the sections placed upon prime swarms, nearly half filled with drone brood. It is unnecessary to say that thin worker or section foundation, and the queen-excluders, do away with all trouble of brood in the sections.

Heads of Grain from Different Fields

THE DEATH OF VOGEL.

One of Germany's most noted bee-keepers has passed away of late; and since GLEANINGS has not yet mentioned it I take it upon myself to here speak of it.

The *Bienen Zeitung* of April 13 brought the sad news to its readers that its editor, F. W. Vogel, had gone to a better world, his death having occurred April 12 In Vogel the German bee keepers (and for that matter the bee-keepers of the world) have lost out of their ranks a man of rare ability. He has been trying with untiring zeal to disclose the mysteries hidden in the bee hive. It seems that, where many others could see nothing, he saw clearly. With the microscope he was simply a genius. In dissecting the most minute insects and their organs he was a master with perhaps few equals. How often have I been astonished and surprised at his accomplishments along this line!

During his life's career honors have been bestowed upon him by crowned heads of Europe, they having repeatedly taken notice of him, decorated him, etc.

He was honorary member of quite a number of bee-keepers' associations and other societies for the promotion of science of his own and foreign countries.

For years he has been the leading spirit in the annual *Wanderversammlung* of Germany's and Austria's bee-keepers. The success of these meetings must be largely attributed to him, to his qualifications as a manager, his fitness in general. No discord ever entered into these meetings.

In the May issue of the *Bienen Zeitung* Dr. Dzierzon and Bergfeld sing the praises of Vogel, give expression to their sorrow, and with that they express what all the bee-keepers of Germany feel.

It seems as though I had lost a long-loved friend. Vogel will always be remembered.

Naples, N. Y., June 10. F. GREINER.

THE ROBBER-FLY.

Editor Gleanings:—I have the following letter from C. R. Decker, Tipton, Cal.:

> *Prof. A. J. Cook:*—Inclosed you will find a bug which I saw catch and kill a bee. Will you please give through GLEANINGS the name and habits of this insect?

This insect is not a bug, but a two-winged fly, one of the large robber-flies that are well known as bee-killers throughout the whole country. It is one of the robber-flies, or *Asilidæ*. These flies are either long, black insects, with tapering bodies, or else yellow, hairy insects, much resembling bumble-bees. They have a strong beak, and are very ferocious. I have known one to attack a fierce tiger-beetle, subdue it, and carry it off. They are very common in California. I consider these robber-flies as very valuable. They are among the best of our predaceous insects, and without doubt destroy a great many of our insect-enemies. I doubt if in many localities they destroy enough bees to do any very serious mischief, while it would be hard to overestimate the amount of good which they accomplish.

CALIFORNIA KINGBIRD.

A few days ago a kingbird was shot at Claremont, which had a number of bees in its stomach. I did not see the bird, but my authority is such that I have no doubt of the fact. I should have been very glad indeed to make an examination, as I should like to determine as to the sting of the bees swallowed—whether the bird destroyed the stings before it swallowed them, or whether the sting was lodged in the bird's throat, or whether it was still in the bee after it entered the stomach. The same party killed a kingbird a few days after, and brought it to me, when I carefully dissected its stomach. I found in the gullet, not yet down to the stomach, a large robber-fly. Thus, if the kingbird does kill the bees it also preys in part upon one of the bee's worst enemies, the robber-fly. The other insects in the stomach of this king-bird (and they were a large number) were all injurious species. I think, then, that we may say of the kingbird as of the robber-flies, that, while they do take some bees, they do far more good than harm. It is often said that the kingbird feeds only on drone bees, and does not take the workers. This is certainly not true. They do sometimes capture and feed upon worker bees. A. J. COOK.

Claremont, Cal., June 3.

[In large queen-rearing apiaries it is sometimes necessary to shoot the kingbirds. I remember one season we lost a good many young queens. We also noted that the kingbirds were quite numerous about the apiary. We shot them off, and there was less trouble. I do believe, however, that any bird that feeds upon insects (unless it be sparrows) usually does more good than harm, and their lives should generally be spared.—ED.]

HONEY FROM POISONOUS SOURCES.

On page 376 you can't imagine why W. C. Myer wants his bees to work on poison oak. If it is the same as poison sumac, and I think it is, I don't think it will harm bees or man to use the honey, as there is plenty of it in the swamps here, and I never heard of any ill effects from it. Poison ivy is an excellent honey-plant here, and bees just swarm on it when in bloom. The honey goes in with clover, and you would never know it was there.

My 96 colonies all wintered out of doors. One was queenless, but I gave it a cell and saved it. Only 4 weak in the lot. I never had my bees in as good shape at this time of year. Bees began to swarm the 10th—earlier than ever before since I kept bees. I have, from 76 hives, extracted 880 lbs. of honey up to date; lots of fruit-bloom honey in hives now.

E. D. HOWELL.

New Hampton, N. Y., May 15.

[Prof. A. J. Cook holds that honey from poisonous plants is not poisonous. Perhaps the honey from poisonous sources, when mixed with the other honey, bears so small a proportion that it is only a "drop in the bucket." Some of the most deadly poisons, when diluted much, are perfectly harmless.—ED.]

THE ACTUAL RELATIVE PRICES OF BEESWAX AND HONEY IN MEXICO AND THE UNITED STATES.

There appears in the *American Bee Journal* of April 29 an advertisement for the sale of a home in Mexico. Elsewhere a statement is made to the effect that wax sells at 50 cts. per pound, and extracted honey at 10 to 12 cts., and from fruit alone on this place he should realize $250 to $300 this year. Now, don't let any one be misled by such statements, as you well know Mexico deals in depreciated money, and one dollar of our money will buy two of theirs; consequently 50 cents for wax is not as good as 25 cents is in the U. S.; 10 and 12 cents for extracted honey is not as good as 5 and 6 cents in America, because flour, one of the staples, is worth more than double in Mexico what it is in this country; besides, there is no society to speak of but Mexicans, and I know whereof I speak. To any that may be looking for a home in the beautiful land of sunshine, there is lots of room in Southern California, and the finest honey-producing section in the world. I have 55 colonies of bees, and up to this date have extracted two tons of the finest water-white honey I ever saw, and shall, without doubt, take two or three tons more before the flow ceases, which will be about the middle of July, if nothing happens to prevent it. Please bear in mind I had, spring count, only 20 colonies, and bought 12; the rest is increase. M. H. DUNN.

Fullerton, Cal., May 30.

IS COMB HONEY REALLY BETTER THAN EXTRACTED?

Dr. C. C. Miller:—I wish you would write up the reality of a fondness of some people for eating comb honey. It is nice on the table, and looks very tempting. I like comb honey, but get tired of it, and catch myself extracting the honey from the wax, eating the syrup, and leaving the wax on the side of my plate, and I see others at the same game.

Now, what is the reality in this? Do I like it better in the comb, or is it a notion, which seems to be proven by the wax by my plate?

Dadant says, page 430, Langstroth Revised, that people go to a great expense in raising comb honey to enable the owner to eat his honey with the wax, when, as every one well knows, wax is tasteless and indigestible. It sells for more than extracted honey, but that may be owing to scarcity or demand. How is it when they claim to like comb honey better than extracted, and deny they like the wax?

Newell, N. C. JOSIAH W. HUNTER.

[Dr. Miller replies:]

I think I don't need to do much writing up after what Mr. Hunter has said. I think it is true that a good deal is foolishly said about the delicious flavor of beeswax pure from the bees without any intervention of man. A few days ago I took a piece of freshly built comb, pure and white (it was drone comb that I had broken out), and no amount of chewing could extract from it the delicious flavor talked about. A pine stick has a good deal more flavor, and perhaps of just as good quality. I think the mistake has been made in some cases by comparing comb honey with extracted. It is probably true that the average sample of comb honey is of better quality than the average sample of extracted—not because the honey in one case is intrinsically better than in the other, but because so much honey is extracted before it is fit. Usually the best honey can be found in the comb; but it isn't the comb that gives the flavor, and I suppose the best sample of comb honey ever produced would be improved for the purpose of taste by having the wax removed. C. C. MILLER.

[In addition to what the doctor has said, and which I indorse, the general public, to a great extent, are suspicious of extracted. No matter how pure and good it is, they are apt to think it is adulterated; but honey in the comb they have confidence in. If we *think* a thing is better it tastes better, no matter whether it really is or not. Mr. Hutchinson has suggested that it is the crushing of the comb with its delicious sweetness that tickles the palate.—ED.]

THE NEW DRAWN FOUNDATION—A BOON TO BEE-KEEPERS.

The samples of deep-cell foundation came to hand in good shape. You must understand the mail-bag is thrown from an express train going at the rate of 50 miles an hour by our way station. I expected to see it crushed. I consider it a good test of strength.

Having read the criticisms I was desirous of comparing it with natural drawn comb. I have before me several sections from last season, full sheets and starters, drawn from ¼ to ½ inch deep; and even where the bees have built natural comb containing the starters two-thirds down, your deep cell excels it in transparency and whiteness. I am satisfied that, if you can make this new improvement a commercial success, it will be a boon to bee-keepers. Please send me samples of deep cell, ⅜ in., as I propose to make an experiment, alternating each kind with starters and full sheets in one super.

Bees are in fine shape—brood-frames full of brood and honey, and supers on.

B. F. ONDERDONK.

Mountain View, N. J., May 7.

[We should be glad to have you give us the results of your experience later on.—ED.]

YELLOW-JESSAMINE HONEY; HAVING EYES BUT SEEING NOT.

Please tell Mr. Ernest that I am now here to sift that yellow-jessamine story, as I am one of those who do not believe in poisoned honey. People will drink water after eating honey, and so there happen a great many cases of fermentation in the stomach, called poisoning, to make out a case for some physician. And I believe that your grand botanists may be up to all known classifications of northern flora; but when it comes to the tropical flora and its immense varieties, they are completely at sea, and the reason is obvious. They can not examine and study them in the summer, their right season, but go to the tropics when every thing is dried up and there is nothing to see. Not long ago one of your taxidermists went to our section after birds, in the dry season, and was heard to say that Cuba was very poor in birds. The birds were then in the virgin woods, where they could get something to eat, and he could not find them. The same with many that "have eyes and see not."

Tampa, Fla., June 11. **C. CADALSO.**

THE FOUL BROOD LAW IN MICHIGAN.

[Some little time ago I wrote to the Hon. Geo. E. Hilton, of Fremont, Mich., for a copy of the foul-brood law of that State. The following is his reply, together with a copy of the law in question:]

My dear Ernest:—Replying to yours of the 19th, I went through my "Public Acts" as far back as I have them, and then went to my attorney's office, and found an act that was introduced by Dr. Wm. W. Root during the session of 1881. I have had it copied, and you will find it inclosed. I consider it a splendid measure, but I don't believe there is one bee-keeper in a hundred in the State of Michigan who knows there is such a law upon our statute-books. It has never been amended or repealed, and is to-day in full force, and I would suggest the printing of the bill in GLEANINGS, for the benefit of the bee-keepers of America. **GEO. E. HILTON.**

Fremont, Mich.

CHAPTER LXII.

PREVENTION OF FOUL BROOD AMONG BEES.

1881, p. 125, May 11, Act 141.

SECTION 1.—The people of the State of Michigan enact: That it shall be unlawful for any person to keep in his apiary any colony of bees affected with the contagious malady known as foul brood; and it shall be the duty of every bee keeper, as soon as he becomes aware of the existence of said disease among his bees, to forthwith destroy, or cause to be destroyed by burning or interment all colonies thus affected.

SEC. 2. In any county in this State in which foul brood exists, or in which there are good reasons to believe it exists, it shall be lawful for any five or more actual bee keepers of said county to set forth such fact, belief, or apprehension in a petition addressed to the judge of probate, requiring him to appoint a competent commissioner to prevent the spread of said disease, and to eradicate the same; which petition shall be filed with and become a part of the records of the court where such application is made.

SEC. 3. It shall be the duty of the judge of probate, on the receipt of the petition specified in section two of this act, to appoint within ten days thereafter a well known and competent bee keeper of said county as a commissioner, who shall hold his office during the pleasure of said court, and a record of such order of appointment and revocation, when revoked, shall be filed as a part of the records of said court.

SEC. 4. It shall be the duty of said commissioner, within ten days after his appointment as aforesaid, to file his acceptance of the same with the court from which he received his appointment.

SEC. 5. Upon complaint of any three bee-keepers of said county in writing and on oath, to said commissioner, setting forth that said disease exists, or that they have reason to believe it exists within said county, designating the apiary or apiaries wherein they believe it to be, it shall become the duty of the commissioner, to whom such complaint is delivered, to proceed, without unnecessary delay, to examine the bees so designated; and if he shall become satisfied that any colony or colonies of said bees are diseased with foul brood he shall, without further disturbance to said bees, fix some distinguishing mark upon each hive wherein exists said foul brood, and immediately notify the person to whom said bees belong, personally or by leaving a written notice at his place of residence, if he be a resident of such county; and if such owner be a non-resident of such county, then by leaving the same with the person in charge of such bees, requiring said person, within five days, Sundays excepted, from the date of said notice, to effectually remove or destroy said hives, together with their entire contents, by burying them or by fire; but in case no foul brood is found to exist in said apiary, the persons so petitioning, or any of them, shall be liable to said commissioner for the amount of his fees for such services.

SEC. 6. If any person neglects to destroy or cause to be destroyed said hives and their contents in manner as described in section five, after due notification and after the time above limited, he shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not to exceed twenty-five dollars, or by imprisonment in the county jail not more than fifteen days, or both, in the discretion of the court, for the first offense; and for each additional offense he shall be liable to a fine not to exceed one hundred dollars, or imprisonment in the county jail not more than sixty days, or both, in the discretion of the court, and any justice of the peace of the county in which said bees exist shall have jurisdiction thereof.

SEC. 7. The commissioner shall be allowed for services under this act, two dollars for each full day actually employed, and one dollar for each half day actually employed, the account to be audited by the board of supervisors, and paid in the same manner as all other county claims; but no fees shall be allowed by the board of supervisors to such commissioner for any services under this act unless foul brood is found to exist.

SEC. 8. In all suits and prosecutions under this act it shall be necessary to prove that said bees were actually diseased or infected with foul brood.

[There is already an excellent law in Wisconsin, and I hope later on to give a text of it in GLEANINGS. We shall be very glad to furnish copies of our journal, containing these excellent measures, to bee-keepers residing in States with no such law, and who wish to distribute them to members of their general assemblies.—ED.]

FOUNDATION WITHOUT PAPER.

The foundation without papers came to hand all O. K., and is much less trouble than when papered. We prefer it in the strips. Honey is coming in nicely, and of fine quality.

N. E. DOANE.

Breckenridge, Mich., June 24.

[Mr. Doane has purchased several lots of foundation this season without paper. In all northern shipments the paper could be dispensed with to advantage to us and our customers, I believe; but we do not as yet dare to risk the experiment until we can hear from more like the above. For southern shipments it doubtless would be wise not to think of giving up the papering.—ED.]

WHEN TO REPLACE OLD DARK COMBS.

I have some stands of bees, and the brood-comb is getting black and hard. Will you please tell me when is the best time of the year to remove some of the old comb and put in foundation? How many sheets should I remove at one time? **R. A. WEDDINGTON.**

Moulton, Tex., May 22.

[The best time to remove old black combs, or those that are in any way defective, is when there is the least honey in them. Usually that will be in the spring of the year, about fruit-bloom, or shortly after. Along in the fall also, when you are contracting your colonies to as few frames as they can occupy, you can remove the outside frames that are empty, and set them to one side. From this lot you can select the combs that are defective or dark, and replace them in the spring or summer with frames of foundation.—ED.]

Friend Aikin's articles in the two last issues of GLEANINGS, in regard to putting up extracted honey in tin cans, are sound, and speak my ideas exactly. Something must be done along this line in disposing of extracted honey. You speak of placing 4½-lb. cans at your branch offices for sale. By all means place the size of 1, 2, and 3 lb. cans in your list as well.

Plattsmouth, Neb. **J. M. YOUNG.**

REARING QUEENS ON THE JONES SYSTEM.

You ask in GLEANINGS for reports on how the Jones system of rearing queens works. I would say that I have some fine queens with less work than when I had to dip the cells on sticks, *a la* Doolittle. CHAS. STEWART.

Sammonsville, N. Y.

Our stores in this part of the State are being flooded with goldenrod honey put up in glass tumblers retailing at 10 cts. each. I send a sample by mail. If this honey is pure, no harm is done. H. W. MCCOMBS.

Richmond, Iowa.

[The sample in question was undoubtedly adulterated with glucose.—ED.]

Can you tell me where or how I can get a queen or nucleus of the giant bee of India? If so, what will be the probable cost?

It is disgusting to read the different articles in some bee-journals against the new deep-cell foundation and the giant bee, when the writers have never seen or tried either, and, one might say, know nothing of either. It is surprising to learn the number of narrow-minded, jealous writers we have to put up with. I shall be glad when we can get the deep-cell foundation. I believe it will be invaluable. I am using the new Weed process foundation. It is the finest I have ever used or seen. J. W. GREGG.

Gazell, Cal., May 24.

[There is no place yet in this country, and may never be, where queens of this race may be obtained. See Straws, this issue.—ED.

SELLING HONEY IN A UNIFORM PACKAGE; BRO. AIKIN'S IDEA INDORSED.

On page 407 Bro. Aikin has opened up a good idea. I tried to get the Columbus Storage and Commission Co. to do this very thing last fall—to put extracted honey in cheap packages so I could sell to the groceries or to the consumer direct through the market; and now if I can get honey that I can guarantee to be pure, and labeled as it should be, I can sell thousands of pounds, as I have a good trade on comb in Columbus and at home, and I can do the same on extracted; but on account of there being so much on the market that is adulterated it would take some little time to convince the people that I was selling a pure article; but when this is done my trade will be enormous; and if there is a company formed to engage in this business I will give up my business and give all my time to the honey trade in Columbus and near-by towns; so I hope this matter will be pushed to the front. In this way I could get the producer a better price for his honey, both comb and extracted, than they can possibly get through commission houses. The way honey is now sold here, there are at least three commissions paid; while if I sold to the consumer there would be only one.

Blacklick, O. D. M. RITCHEY.

REPORTS ENCOURAGING

Bees are still booming. We shall have lots of honey. DAVID GROSSMAN.

Terrell, Texas, June 29.

We are having the heaviest flow of white-clover honey I ever saw. C. C. EDDY.

Reinersville, Ohio, June 25.

At present we have the *first great honey-flow* from white clover for many years. My bees are just rolling in the honey. M. N. SIMON.

Bloomdale, O., June 25.

Sweet clover beginning to bloom. I took 48 lbs. of comb honey to-day from one six-frame hive; others as good; will take off my first crop to-day and to-morrow. D. M. RITCHEY.

Blacklick, O., June 24.

We are having the heaviest honey-flow I have experienced in the 17 years that I have kept bees. Swarms that were hived the first week in June have finished 56 sections besides the brood-chamber, and are swarming again.

England, Pa., June 30. S. B. POST.

Wanted at once, 100,000 overcoats for bees so that they can gather a little of the thousands of pounds of honey hanging in the clover-blossoms. L. B. THATCHER.

Somerville, N. J., June 15.

[When the foregoing was written it was doubtless cold; but to-day, July 3, it is 98° F. in the shade. Those overcoats will not be needed now.—ED.]

THE GREAT WHITE-CLOVER YEAR.

If this is not the good old white-clover year again, what is it? This year will always be known as the great white-clover year. Here it is June 15, and I have 50 hives with 60 sections on each hive, two-thirds of which are sealed. The ground looks as if it were covered with snow, the clover bloom is so heavy; and lots of swarming too, but not with the L. hive. I have not had a swarm from one of these hives; but the bees in American hives are swarming badly.

Fremont, O. CHAUNCEY REYNOLDS.

A BANNER HONEY YEAR.

This has been one of the best seasons that Parke County bee-keepers have seen in several years. White clover has been very abundant, and yielded an unusual amount of honey. Other honey-plants have yielded in proportion to clover. At this date basswood has just commenced to bloom. Taking all together, the year 1897 will long be remembered as a banner honey year.

Rockville, Ind., July 3. W. P. OVERMAN.

BEGINNERS
QUESTION
BY E. R.
ROOT.

J. M. C., La.—It is quite a common practice to place two swarms together in the same hive. As a general rule, only one queen is killed.

D. E. B., N. Y.—You can put other bees on the combs coming from hives on which bees died the previous winter. The fact that the said combs contained candied honey will do no harm—at least for spring or summer use.

G. W. S., Wis.—The question as to whether bees are taxable property or not is one that can not be answered by yes or no. It all depends on the law of your State in reference to the matter. If you consult some attorney he will probably be able to tell you.

D. B. H., Wash.—It does little if any good to put any thing on a bee-sting, for the reason that the applied remedy can not reach the depth of the wound. It is usually best to leave it entirely alone. The more it is tinkered with, the worse it will become.

M. E. H., Mich.—The fact that you find the bees fighting at the entrance, with dead bees in front of it, is pretty good evidence that there has been robbing in that hive. Possibly the entrance is too large for the size of the colony, and should be contracted.

J. B. W., Tex.—The dandruff-like particles that you found in front of the entrance are probably the scrapings from the combs, or small pieces of cappings taken off when the honey is uncapped. When the bees have no use for this surplus wax they will carry it out at the entrance.

H. E. M., Ind.—Referring to your inquiry regarding the swarm of bees that came out and went back, and did the same thing next day, we would state that, in all probability, the queen was not able to follow. If her wing was defective when the swarm issued she would crawl out at the entrance, and, failing to fly, would crawl back into the hive, followed soon after by the bees.

P. D. S., Pa.—Swarms will very often come out the second and third time as you have described. You can usually make them stay the first time by giving them a frame of unsealed larvæ from some other hive. Then in hiving swarms it is always advisable to leave a very wide entrance, and leave the cover tilted just enough so as to give a strong circulation of air through the hive. When they get quieted down, then the cover may be closed over, and all will go well.

W. L. S., Va.—It is usually best to introduce queens just as soon as they are received in the mails. A queen may live in the cage one day or ten days; but it is not safe to take any risk. It is not necessary to requeen a swarm unless, perhaps, the queen is an old one and should be replaced. Unless you desire to rear queens it is not necessary nor advisable to maintain drones in the hive. They should be kept out with the Alley trap, or, better, all drone comb should be cut out early in the season, and thus save the waste.

J. C., Va.—If your bees do not work to any extent in sections, inverting the hive would do little if any good. It is usual to put in what is known as a bait section—that is, a section with comb partially drawn out from last season. The bees will usually enter and store honey in this, and from this branch out to other sections; but unless the brood-nest is pretty well crammed with honey, bees will not enter the supers Until the lower part of the hive is filled you can not get them to go above, and not in any event unless honey is coming in at a good rate.

J. S. E., W. Va.—It is proper to give the bees more room, but not toward the latter end of the season, when it is evident that clover bloom and basswood are drawing to a close. You can also place a crate of partly filled sections from one hive on to another. This is often done by practical bee-keepers—that is, the crate is given to a colony that is stronger, and more likely to finish out the season. For particulars in regard to the matter, see "How to Produce Comb Honey," in the catalog we are mailing you, p. 33. You can divide a colony in July, as you state, and, by paying attention to feeding, get them both in fine condition for winter. Better be careful about increasing too fast. Bees will increase fast enough, usually, during the swarming season. The eight-frame hive seems to have the preference now, and it may be made to take a large colony by using two brood-chambers.

E. C., N. H.—Regarding the queen and drone trap, which you have doubtless received, we would state that, by the directions on the end of the trap, you will see that a queen can be caught in the upper compartment, the trap detached, and placed among the flying bees of the swarm now in the air. We have sometimes attached the trap to a common garden-rake, and held it in midair until the bees had clustered upon it. Or a better way is to detach the trap from the parent hive and put another hive in its place, with dry combs or frames of foundation. Put the trap on this hive and the swarm will return. As soon as the bees are in the hive, let the queen run in at the entrance. If there was a super on the parent hive, put that on the new hive, and then the new swarm is ready for business. The old hive may be removed to another location. For fuller particulars on this question see our A B C of Bee Culture.

By ER Root

Editorial

WE are still running night and day, but expect to be pretty well caught up by the 17th. The demand for shipping cases and sections is simply phenomenal.

UNDER Convention Notices will be found a letter from Dr. A. B. Mason, Secretary of the United States Bee-keepers' Union. He requests me to state that the information he gave on page 457, June 15, so far as it related to railroad rates, was not correct, and should be entirely disregarded; and he further says that what appears in Convention Notices is all right, and correct. Our readers will please take notice.

HOW TO DRAW A CROWD TO SELL HONEY.

IN our previous issue I promised to tell how to draw a crowd around groceries and other places where honey is sold. The experiment to which I shall refer was tried in Detroit. A large tobacco-firm, who were using honey to sweeten their tobaccos, and who desired to advertise the fact, employed a bee-keeper to place an observatory hive just inside the show-window. On top of the hive was placed a row of nicely filled sections of honey. Of course, the hive was arranged so the bees could not fly out, and every few days the bees were given a rest, and another set of frames was put in their place. The experiment was a success in every way. Great crowds congregated about the window, and the tobacco-store was full of men who wanted to sample the new honey tobacco. The crowds became so great that the police had to request the tobacco firm to discontinue their novel mode of advertising. They practiced the same method in another part of the city with the same success, and were, sooner or later, asked by the police to take the bees out of the window, as it interfered with traffic.

While GLEANINGS is opposed, first, last, and all the time, to the use of tobacco in any form, it recognizes that here is a legitimate mode of advertising that may very often be employed profitably by *bee-keepers*. Prepare a hive having one glass side. In the hive is placed one comb of bees, the bees being shut off from the rest of the hive by a tight-fitting division-board. As only one side of a comb can appear at once, one comb is sufficient. Over the frame of bees are placed four nicely filled sections of honey to which also the bees have access. The whole is neatly encased in glass. The hive is shoved up close to the show-window, and over it a neat card: "These bees belong to John Jones. His honey is for sale here. Inquire within."

I said in our last issue, and elsewhere in this number, that, in view of the enormous honey crop, bee-keepers should take every means possible to work up their home markets. Here is a scheme. Try it and report.

HOW SHALL WE KEEP UP PRICES ON HONEY?

REPORTS are piling in every day saying that there has been a most tremendous flow of honey from white clover, and in some cases there is still basswood to follow. In another column we publish a few of these encouraging reports. We have not room enough to put them all in, but we give place to just enough to show which way the wind blows. But this large crop of honey places before bee-keepers a difficult problem; namely, "How shall we keep up prices?" In relation to this I make an extract from a letter just received from Harry Lathrop, a prominent bee-keeper of Wisconsin.

> I fear a glut in the honey market, and ruined prices. The whole of Southern Wisconsin is flooded with white clover, and well-finished sections are now on the market, and the white clover season not half gone. Basswood, promising a large crop, will soon be in bloom. What can we do to save our market? Farmers who do not make a specialty of kee-keeping will sell their little crop at ruinously low prices, and make the price for the bee-keeper who depends on his honey crop alone. Supplies and general cost of production are as high as ever. Sections from most factories cost more this year than last. If you could reach the people I refer to you could advise them not to sell their honey too low; but you can not reach many of them. No one in this country ever saw as much white clover in bloom at once as there is now. The year 1893 does not compare; still, there is too much rain for strictly first-class work in storing. Though I have colonies that have given two full supers of extracted, the quality seems to be excellent, regardless of the rainy weather. H. LATHROP.
>
> Browntown, Wis., June 30.

It is true, that farmers who make no specialty of bee-keeping will sell their crop at ruinously low prices. I do not know of any way to do except to ascertain who have produced honey, and go around personally and ask them to agree not to sell lower than certain prices. This would not be a combine nor a pool, but simply an effort on the part of honest bee-keepers to protect themselves from ruinous prices. Such a move will enable the farmer to realize, at the same time, more for his honey. If there are only one or two and their crops are not large it might be well for you to buy them out.

In our last issue I cautioned bee-keepers against the policy of rushing their honey off to the city markets, and urged every one to sell around home as far as possible. When bee-keepers flood the great centers with honey it makes a glut on the market, and the published prices go into every little town and hamlet of the country; and, barring difference in freights, those city prices are almost sure to put all other markets on the same level.

A liberal use should be made of the honey-leaflets. When there is over-production, stimulate greater consumption. Bee-keepers everywhere should take honey-leaflets and distribute them around their locality and in their home markets. Let people know *why* honey is a more wholesome sweet, especially if it comes direct from your own apiary, than ordinary syrups and so-called "strained honeys" that come from the cities.

The price of the leaflets is put away down so that you can afford to give them away. (See prices following the Honey Column.) The watchword, then, with bee-keepers everywhere should be, increased consumption of honey; for unless there is, prices will drop in obedience to the law of supply and demand. If there is a double supply, the thing to do is to *double the demand* if possible.

THE NEW DRAWN FOUNDATION: DOES IT MAKE "GOBBY" COMB HONEY?

Of course, this new article has been the subject of continued and careful experiment at the Home of the Honey-bees. Supers having a row of drawn foundation, and then a row of full sheets of ordinary foundation placed in alternation, have been placed on the hives, both at the home and at the out-yard. We have also given the bees supers containing sections filled with drawn foundation only. Now, what has been the result of these experiments? Just the same as those conducted on a much smaller scale last year. In every case the bees have accepted the new drawn foundation at once. As was to be expected, where full sheets of the new article were put into sections, the combs were attached, when completed, to all four sides.

Earlier in the season, when orders were pressing for the new foundation, we put into a good many sections only narrow strips about 1½ inches wide. These were placed in alternation with the old-style foundation of the same width. The new article was accepted at once, and comb-building begun at its bottom edge, and continued down to the bottom of the section, nearly. In very many instances such combs were nearly completed before the bees did much with the narrow starters of *common* foundation, which they had gnawed in many cases. In one or two instances, where the supers of full sheets of drawn foundation and full sheets of old foundation were placed in alternation over *powerful* colonies, the old product was not so far behind in the drawing out.*

"But," you may ask, "what kind of comb honey does the new drawn foundation make?" I suppose an ordinary fair test would be to compare it with comb honey made from full sheets of foundation. But Mr. Weed was determined to give it a more severe test still. Accordingly he brought in one of the sections completed that had been made from a narrow starter of *drawn* foundation. The lower portion, or that built by the bees, was, of course, natural drone comb. In my presence he requested two of the printers to turn their backs while he cut a small chunk of comb honey from the natural-built comb, and one that had been completed over the drawn foundation, *both from the same sections*. Boss printer Hobart then took a mouthful of one, without knowing which one he took. He chewed it down to a piece of wax, and then took a mouthful of the other, and chewed that also. When asked to state whether one was more "gobby" than the other, he answered in the affirmative. On being asked *which* one it was, he named the second mouthful, which proved to be the natural-built drone-comb. To make sure that there was no mistake, another printer, Mr. Shane, was tried in the same way, only that the order of the mouthfuls was reversed, with the result in favor of the new product again. It seemed to me hardly *possible* that the Weed foundation would give *more pliable* comb honey with *less wax* than that built wholly by the bees, even though it were drone comb. Then the test was applied on me, with the result that I could see quite a marked difference in favor of the Weed. I asked Mr. Shane what he meant by saying that one was more "gobby" than the other. "Why," said he, "one is harder to chew."

Now, understand that this honey from the new Weed drawn foundation was put in to test over against *comb built wholly by the bees*, but which, as a matter of fact, was *drone* comb, and which they usually build for store purposes during the honey-flow.

It should be stated that natural-built drone is heavier than natural-built worker; but the bees don't build much worker comb for store purposes, as already stated. It will be seen that the fear that the comb honey from the new product be *more* "gobby" is groundless.

Later.—After the above was in type we tried again the same experiment that we did on the printers, with the exception that we placed comb honey from foundation in the test. The tasters were A. I. Root, my sister Constance, my mother, three of the machine-shop men who hardly know a bee from a grasshopper, and, last, the cook in our lunch-room. The verdict of all was that the natural-drawn comb was heavier and more gobby than either the drawn-foundation honey or that built from full sheets of ordinary foundation. As between the last two, the verdict was that there was no difference. Please understand that none of the tasters above mentioned had knowledge beforehand which sample was which. They were tested independently, with the result aforesaid.

To-day, July 12, I took home with me a section built wholly from a full sheet of Weed drawn foundation. I cut it out of the section myself. At the point where it was fastened to the wood, it seemed to resist the knife considerably; but beyond this the blade went through the comb without any sensation of midrib, as is present when the comb is built from full sheets of ordinary foundation. Upon eating the comb I could not see how anybody could think it was *more* gobby than ordinary comb honey. Strange as it may seem, our household do not ordinarily care very much for honey; but Mrs. Root remarked how nice and tender this comb was. The whole section had delicate comb, and they all pronounce it fine—even the youngest, who sits by "papa."

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* This was the experience of M. G. Chase; but powerful colonies are not always to be had.—Ed.

Now, I do not believe that I am prejudiced; and if any one thinks I am, I hope such person will try the experiment of blindfolding two disinterested persons, placing before them samples of comb honey. That will surely eliminate the element of prejudice which is so decidedly pronounced on the part of a few of those who have seen fit to oppose the new article. One man condemned the new drawn foundation severely, even before he had tried it. Now, after having tried it on a small scale (three samples from our first dies that were very inferior to our present ones), on the principle of "I told you so" he condemns it just as severely again, saying that bees would not accept it, and that it had an "awful gob" to it. His experience is so opposed to our own, in the case of dozens of samples I have seen, that I must believe his prejudice quite ran away with his judgment. A few condemned ordinary foundation when it was first introduced into this country. They condemned it beforehand, and then condemned after they had tried it, saying that the bees would not accept it, etc. It is not at all strange that one who has condemned severely the new drawn foundation should do so now, after having tried it.

It is hardly time yet for reports to come in from the general field, for, in fact, we have not solicited them, except in a general way; but here is one just received from Mr. F. A. Salisbury, and it speaks for itself:

> *Ernest R. Root:*—This afternoon I looked at the case of sections of drawn foundation that were placed on an average colony on the 8th inst., and find that all the sections were accepted by the bees, and drawn out still more by them, and filled partly with fresh honey. I took off one section and marked (in the hive 48 hours) to show bee-keepers. It looks nice. I shall take off another one on the 12th. I think you have a good thing if the price is not so high as to prohibit its use. I wish you would send me about 1 lb. more by express. I will test it alternately with foundation. This case was put on with all drawn comb. I did not think about alternating them when I placed them on.
>
> F. A. Salisbury.
>
> Syracuse, N. Y., July 10, 1897.

Mr. Salisbury has been requested to place samples in alternation with ordinary foundation, and we shall await with interest the result of his further experiment. There are hundreds of others who have been testing the new article, and, of course, we shall be glad to hear from them too, whether their reports are good, bad, or indifferent. In the mean time I might add that we have heard from Mr. Vernon Burt, who has been trying half a pound of the new foundation. He reports that it is a good thing; that it has only one fault; namely, *he can not get enough of it.*

Mr. John Iper, who has a few colonies out of town, has also been trying the new drawn foundation, with the result that he finds a decided preference on the part of the bees for the new article. Said he, "The bees begin to store honey in it immediately; and then after the comb of the drawn foundation is filled and well under way they begin on the starters, in the ordinary way." He has not yet tested the eating quality of the two kinds of comb honey.

Mr. M. G. Chase, owning some 125 colonies seven miles from here, at Whittlesey, has also been testing the new product. He placed in one super a row of sections of drawn comb of the previous season of full depth, a row of the Weed drawn foundation ¼ inch deep, with a piece at the top and a piece at the bottom of the sections; also a row of full sheets of common foundation. The full-depth comb was entered first of course, then next the drawn foundation. After the work was well begun in these then the bees drew out the common foundation. If the drawn comb had been leveled down to the same depth as the drawn foundation, the bees, he thought, would have taken one as quickly as the other.

To-day, July 13, he brought me up representative samples showing each of the three lots. Sections after being completed, containing either the drawn comb or the drawn foundation, weighed from one to two ounces more than sections that contained full sheets of common foundation. I have the samples in our office now, and shall be glad to show them to any one who wishes to see them. One thing that is quite marked in favor of the new drawn foundation in sections is that the bottom of the section is built on to as solidly and as perfectly as the top. This was owing no doubt to the fact of the bottom starter of the new article.

OUR OWN APIARY.

Never, in all the time that I have had to do with bees, unless it was during that remarkable year of 1870, when I was too much of a lad to know much about bees, do I remember of such a remarkable honey-flow as we are having from white clover. Our hives, especially at the outyard, are stacked up two and three stories high. At this writing, July 12, honey is still coming in from clover, although it is evident, from the brown heads that have gone to seed, scattered through the fields far and wide, that nectar from this source, at least, will soon cease.

I stated in our last issue that basswoods would probably be a failure in this part, as no buds appeared on the trees; but it seems as if I must have been partly wrong, for the bees are beginning to drop in at the entrances as if they were getting honey somewhere. Mr. Vernon Burt, a few miles north of us, is very certain he will get some honey from basswood, because he has seen the promising buds on the big forest-trees. After all, I suspect it is these big trees that really yield the bulk of linden honey. Very often I have seen the small trees, loaded with blossoms, turn brown and go to seed, without a bee once going near them.

During the last two or three weeks I have spent many an hour helping the boys do the work in the apiary. While I might hire some one else to do it more cheaply, I believe nothing in the world is so helpful to a bee-journal as for its editor to go out into the apiary and see what the bees have to say about many of the problems that confront us. I believe, therefore, GLEANINGS can afford to have me "waste" a little time. There are several questions that I have been holding back, waiting for the time when I could lay them before the bees. Among them was the question of

BEES HANGING OUT—WHAT IS THE CAUSE OF IT?

I had a vague idea that, if we were to make sure that the bees were never crowded for room, in the first place, and the hives were properly shaded, with good-sized entrances, there would not be any of this hanging-out; and the result of careful experiment and observation this season seems to show that this is true. At our out-yard there has been no hanging-out, but quite a little of it at the home yard. The work in the home apiary at the beginning of the flow got behind. At the out-apiary I made sure to keep pace with the bees. As there would be no one present to look after swarms, it was decidedly necessary that the bees should not get into the *habit* of loafing. There was no loafing here, and only one swarm, and that came out several times while I was away.

As every one knows, hanging out and sulking at the front of the hives shows that something is not quite right. A colony in the height of the honey-flow should have no loafing or sulking bees. I told the boys I did not want to have one hive with its bees hanging out in front, even at night. They did not believe that the poor bees could *help* coming out when the nights were so hot; but I noticed that stronger colonies in the same apiary were busy at work in the sections, without a loafing bee in front. I said to myself, "We must make these other chaps (the loafers) get down to business like the others."

As I found years before, so this year, smoking them in did no good. They would come out again just as soon as they got through "rubbing their eyes." Giving them frames of foundation and plenty of room sometimes answered, but generally they would cluster out even then. Furnishing the bees a good deal of shade helped somewhat. Giving them very wide deep entrances sometimes caused them to go into the hives and go to work.

This hanging-out is indicative of swarming. Early in the season, perhaps the bees are a little cramped for room, and they get into the "habit" of loafing; and this habit, once established, is hard to break up; or perhaps the entrance is too small, or the hive not properly shaded. Any one or all of these conditions may start the habit, and the only way to break it up is to make the bees *think* they have actually swarmed. I am satisfied that, while the bees are loafing and hanging out at the entrance, they are waiting either for the queen or some of their number to start a swarm forth.

There were several of our colonies at the home yard that seemed to be very stubborn. Two of them would hang out in spite of the fact that I personally alternated every one of their frames of brood and honey with frames of foundation. The *habit* had been established, and, no matter what I did, they *would* hang out. Finally, the thought occurred to me to take the hive away entirely (a big two-story chaff one) and put in its place an entirely different hive—a single-walled Dovetailed made up of three stories. This was done and the frames put into the new hive. The greater portion of the bees were shaken out in front, and were made to crawl in at the entrance. The bees went to work, and there was no loafing from that time on. Another hive was treated in a like manner with the same result.

I am fast coming to believe that, in a well-regulated apiary, there should not be a hive with bees hanging out in front. Just think of the waste of over half a colony loafing and doing nothing for days until they swarm, and a super or two of sections without a bee in them! We know perfectly well that, when bees swarm, they will go to work—that is, providing they are put into another hive, and their mania satisfied.

In the foregoing I have enumerated a number of conditions that cause bees to hang out; but one I did not mention; namely, that of queenlessness. Several of our good strong colonies were working nicely until we took away their queens. They immediately began to sulk, and to hang out. They knew something was wrong, and I think they had a sort of idea if they could once swarm, all would go well again. So they thought they would hang out. When these same colonies were supplied with a queen, the loafing ceased and the bees went to work.

I have been watching the matter very narrowly, and I have about come to the conclusion that, for our locality, we do not want a colony with a caged queen or one queenless in the hive. Bees seem to do very much better when there is a queen laying, and brood in all stages; yet I recognize that some good apiarists succeed well with caged queens.

OUR HOMES.

And the man of God was wroth with him, and said, Thou shouldst have smitten five or six times; then hadst thou smitten Syria till thou hadst consumed it whereas now thou shalt smite Syria but thrice.—II. KINGS 13:19.

Then came the disciples to Jesus apart, and said, Why could not we cast him out? And Jesus said unto them, Because of your unbelief; for verily I say unto you, if ye have faith as a grain of mustard seed, ye shall say unto this mountain, Remove hence to yonder place, and it shall remove; and nothing shall be impossible unto you.—MATT. 17:19, 20.

People who knew me in childhood, and those who have visited our place at different periods, often express surprise at a business of such magnitude, built up in so short a space of time; and especially so as I commenced entirely without capital, and with a comparatively frail body besides. Now, do not feel troubled, good friends of mine. I am not going to boast in this Home Paper. If it sounds like boasting, it is because you misunderstand me. I am going to write to-day that I may give you help in your own homes, and not that I may help or brag about myself. Please keep this in mind while I give you some suggestions that I hope and pray will be helpful to you. And let me say that the work I enjoy above all other things in this world of ours is in being helpful to my fellow-man. When I get among people, or in circumstances where my skill and experience are of value, then I am happy; and whenever I find myself in a place where it seems I am not needed, then I am unhappy; and so far as pay is concerned, as I get older I begin to long for the privilege of working where pay does not enter into the matter at all.

Many times visitors, and these friends of whom I have been speaking, have asked me the question, "Mr. Root, what is the secret you possess? Why is it you find so much to do, and how is it that you succeed in setting great crowds of people at work while others all about you are complaining that there is nothing to do, or nothing to do that will pay decent wages?" I think the answer goes along in the line of the first of the two texts I have chosen above. The man of God was "wroth." I like that word *wroth;* and I believe it would be a good thing for us all if a godly and sanctified wrath were to stir us up a little oftener than it does now. Why! some of these bright summer mornings, when the sun begins to make it feel unpleasantly hot, I have felt an almost overpowering inclination to sit still in the shade, and let things run themselves. Yes, I, like yourself, know exactly what it is to have these feelings; and I have prayed again and again for deliverance from this sin of half-heartedness. Now, you may think it a little funny, but the prayer many times seems to be answered by the prince of darkness, and he would very quickly run me into worse troubles than half-heartedness if I did not speedily call on the great Captain, under whose banner I am enrolled, for help and protection. Am I speaking in an enigma? Well, then, let me explain that my half-heartedness is often cured by seeing somebody else half-hearted or criminally stupid. Then my "Root temper" comes up. Satan prompts, no doubt, that I should wake up the half-hearted person with a rush; but old experiences warn me to be careful; and before doing any thing, if I breathe my little prayer, "Lord, help me to right this wrong in a right and proper manner," then I am pretty sure to keep in the straight and narrow path. Let me give you one among many illustrations.

Some time in the latter part of March, when those beds of Grand Rapids lettuce were just getting beautiful to the eyes of all beholders, they also seemed beautiful to our flock of chickens domiciled not many rods away. The weather was getting warm enough for them to begin to make exploring expeditions. They had been fed refuse lettuce from the greenhouse until they knew what it was. One day, when they wandered farther than usual, the whole flock caught a glimpse of the brilliant coloring under the rays of the March sun. I can imagine those biddies as they tipped their heads one way and then another, and ventured cautiously up to the edge of the lettuce-beds. No one was around just then, and that sifted rich mellow soil offered rare inducements for scratching and wallowing. No doubt there were angleworms in that protected soil. Perhaps the chickens had not had a taste of the worms nor of the lettuce for some time back. I need not tell you the rest. You know something what havoc an enterprising flock of hens will make in just a few minutes in a bed of luxuriant garden stuff. For a time we kept them away by tilting the sash just enough to let in air, but close enough to keep out chickens; but this deprived our beds of the great benefit of a summer shower. We had tried frames of poultry-netting, to be put on when the sash was taken off; but these would cost a good deal, and they were more or less in the way when on the beds or off. I told the boys if the hens were driven away with a *tremendous scaring* I did not think they would come back again, especially as their forage-ground was off in another direction. Well, the boys chased the chickens off, but they came back just as soon as another opportunity offered. I made up my mind that, if the hens were sufficiently scared, they would stay away; but I could not think of a boy who would do the work according to my ideas unless I first gave him a copy. The boys were in their teens, and I am toward sixty. Notwithstanding this, I think I can beat any boy out in giving either hens or dogs such a fright that they will never want to come around that way again.

I finally found the hens, with the rooster leading and bossing matters, right in the mischief. I took off my hat and came up slowly until I was pretty well in the midst of the flock. Then with my hands and feet and voice I made such a racket among the poultry that I am sure the most of them will remember it as long as they live. I ran after the old hens and over them, and scared them with my hat until, out of sheer fright, they could not run any more; then I gave the rooster, as the ringleader, such a scaring that *he* could hardly cackle. They were glad enough to find refuge in their own quarters; and after they got breath enough they cackled over the event for an hour or more afterward. I do not know enough about hen language to tell just what they said, but I presume they thought it was monstrous to make all that racket and fuss about a little bed of lettuce. One thing, however, is certain: I have not seen them, either singly or together, around those lettuce-beds since. We did not have any poultry-netting to fuss or bother with, either. I know they remember it, because, when I go through their quarters on my wheel, on the way to the creek bottoms, they will cackle and run as if they thought they were to be chased again as they were on that eventful March day.

Now, it is the same way with dogs. I have told you how much trouble they make by walking over our glass sashes. If the dog is a big one, crash, crash, crash, it goes every step. I do not want to hurt the dogs, and I know the law would permit me to shoot them where they come around and make us trouble without their owners. But I simply want the dogs to *understand* that our fourth-acre of plant-beds is forbidden ground. I have tried to have our boys give each dog as it comes around a good wholesome lesson by way of a fright, but they don't seem to get the hang of it as I do it. Let the dog alone until you get your hands full of sticks or stones, or whatever you can gather up hastily; then get up near enough so you can keep pretty close to him in the chase. Follow him with shouts and peltings, and he will soon learn where it is that he must not go.

A good many times I am impatient at the way people handle horses. A horse that is always starting before you are ready can be thoroughly cured of it by a little faithful *whole-hearted* work. The same horse or horses that will *not* start when you tell them to can also be cured by a little judicious use of the whip. Perhaps there are horses that never need the whip, but I have never found many of them. Valuable lives are lost every day because of half-heartedness in handling and training horses Now, please do not misunderstand me, dear friends, when I go farther and say that valuable lives are lost, not only in body but in *soul*, because of half hearted parents. If you give up to the chickens, and give up to the dogs (or if you choose, *neighbors'* chickens and dogs) you have simply lost your garden and its enjoyment; but when you give up to the child, and say you have done the best you could—that you could not make him mind—then you are responsible for the loss of an *immortal soul;* and you need not be surprised if your gray hairs are brought down in sorrow to the grave.

Before I get through with dogs and chickens I want to say a word about rats and mice. Since I have been trying to build up our business, again and again have rats and mice assailed us. When I protested, our people, different ones, at different times, would say, in effect:

"Well, you can not keep them out, and it is no use trying."

First, the cats would be "no good;" then the traps were no good; or the "rough on rats" was no good. I can not go into detail here; but on personal investigation I found that the *cat* had not been treated properly. Many times pussy was overfed. Then there were no cat-doors so these faithful friends could have access to every nook and cranny. The traps were not properly examined *daily*. Again and again have I found trapped mice left until they were smelling badly. The bait was old and dried up. The traps were not "daintily" adjusted so as to go off at the first touch. For rats, the steel traps were not properly smoked to remove the smell of former transactions; and they did not try bedding them in the sawdust or fine dirt right under the runs. After I taught a boy (or girl either, for that matter) just *how* to manage traps, we had little or no further trouble. Several times I found people who declared they had used "rough on rats," and it did no good; but upon inquiry they had not even once read the printed instructions accompanying each box. Oh how much trouble I have had from things that would not work because the party to whom the thing was intrusted never read the "directions for use"! I have had grown-up men and women coolly inform me they threw the directions away without looking at them.

I once sent out two old farmers into the field to use a Meeker disk harrow. They drew it around the lot almost half an hour *upside down*, without ever so much as looking at the directions securely tacked on the machine, telling how to use it. Somebody will say, "Oh! you are talking about *hired* help; but if these same people were working for themselves they would, of course, take some interest in what they were doing." Well, I have watched this thing, and I am glad to be able to say that these same people, when they were working for themselves, in and around their own homes, managed pretty much the same way. They do not give the matter in question enough thought, energy, and vehemence to make it succeed. Again and again these friends of mine around me say to me, "Oh! you might as well give up; the thing is no good. We have tried it in every way, shape, and manner, and it positively will *not* work." But it does work, sooner or later, when I get hold of it. Perhaps some of them think I make a big fuss about nothing; but I certainly succeed in keeping people at work, and in paying them their wages every Saturday night.

Let me digress right here to say that of late years it is my son and son-in-law who should have the credit of managing the greater part of our business, and not myself.

A good brother who lives far away sent us $3.00 for some goods to be sent by mail. He wanted first $2.40 worth of foundation; then he wanted some slates to hang on his hives. He said in his letter he wanted his goods as soon as they could be got to him. The foundation was already packed and put up, and could have gone by return mail. The slates were supposed to be in the counter store. In order to make one package, the letter went to the store below to have the slates sent up. Where goods go by return mail, or, say, next day, we have not been in the habit of receipting the money; therefore, when it was discovered that some slates were ordered but none were in stock, the letter was held until the slates should come. In the mean time the slate-maker reported he was too busy on other jobs to fuss with little slates for hives. At this crisis the letter should surely have gone back upstairs to have the foundation mailed, informing our customer in regard to the slates. Not so, however. Nothing was sent and nothing was done until I investigated the matter, fully two weeks after the money reached us. I told our friend to make out his bill for damages, and we would try to pay it. And may I right here intimate that a sure and complete remedy for all cases like this last one is the scripture injunction to love your neighbor as yourself? Any man who tries even a little to put himself in his neighbor's place would not be likely to see his neighbor lose a part of his honey crop when nothing at all prevented his having at least the greater part of his order go by return mail; and, in fact, love to God and love to one's neighbor should be a perfect cure for all half-heartedness of whatever nature.

Just one more illustration right here:

A week ago the man who runs the Planet cultivator told me he could do ever so much better work, and save his strength at the same time, if the handles of the cultivator could be raised.

"Why, Mr. B., this cultivator is made just on purpose so you *can* raise or lower the handles to any point you wish."

"Well, I supposed that it was made in that way, but it is not. Loosening the bolts which seem to be made for that very purpose will not permit the handles to go up and down a particle, as you will see."

I took hold of the wrench, got down on my knees in the dirt, and I *did* see. What do you suppose I saw? Why, I saw that, when the cultivator was set up, four or five years ago, the man who put it together put a certain casting on upside down; and in all that time, all the men who had used that cultivator had been annoyed and hindered in their work summer after summer. Not one of them had, until this present time, informed me that the cultivator as it was could not be made to do its best work. Why didn't some of them talk to me as I came around, and tell me about it?

A few days ago our young chickens were going, one every night. After a brood of eleven had gone clear down to three I began making a stir in the neighborhood. About a week before, Mrs. Root had befriended a "tramp" cat. After the cat had been fed and made at home—that is, when she became sufficiently acquainted—she brought forth from their hiding-place four bright kittens, one after another. I soon decided that the tramp cat was responsible for the loss of the chicks; but the whole family said I was mistaken, as she was so kind and gentle, etc. Finally the teamster said one of the men who was mowing the lawn told him he saw the tramp cat with one of the chickens in her mouth. That was probably one of the first of the eleven. I passed the man ever so many times a day, and he could not scrape up energy enough to tell me he *saw* the cat that was taking my chickens one by one. I questioned him about it, and remonstrated because he did not tell me at once, instead of telling somebody else; but he had nothing to say. After the cat was killed, then (not before) he volunteered the information to *Mrs.* Root that it was not the cat that had the four kittens, at all. It was a *yellow* cat that he saw with a chicken in its mouth. According to this I had killed an innocent cat, and left her four "orphling" kittens to get along the best they could.

Now, a few chickens and a cat are but trifles, I know; and perhaps I should not mention them at all were it not that I am expecting some choice Minorcas to hatch some time this week, and I do not propose that one of *them* shall be taken off every night, by considerable. As I said, chickens and kittens are but trifling matters; but we have more or less the same state of affairs all over our establishment. In one of our elevators, belting to the amount of almost a hundred dollars has been destroyed because we *could not* get the men who use the heavy freight-elevator to pull the lever clear up sharp either to one side or the other. When the lever was left pulled part way a belt was burned, so a new one had to be put in its place. It would be exceedingly convenient with our freight-elevators to let each man who is moving freight handle the elevator, but we had to give it up. Two men have now the elevator in charge, and a sign announces that they must be called whenever it is to be used. The whole great business world realizes how hard it is to find men who will learn all about the business they are connected with, and make it their study to save their employers from loss. With almost a world full of people wanting something to do, men who will *think*, *act*, and *talk* so as to save loss are *always* hard to find.

The loss of belting and the loss of life are serious matters, especially when life is lost by somebody's half-heartedness; but, my friends, there are more important problems that meet us almost daily than even this. The Master tells us to beware of him who is able to destroy both soul and body.

In the last of our two texts the disciples asked the Master why it was they did not succeed in banishing the evil spirit from one who was brought to them. He told them it was because of their unbelief; or, as I should put it, in consequence of their half-heartedness. They failed in routing the evil spirit very much as you and I fail in getting rid of rats and mice—pardon me for the illustration. People all around about us admit themselves helpless victims of evil habits. One man said to me, not long ago, when I was remonstrating with him, that he could bring me a testimonial from different physicians to the effect that he was no longer *responsible* for his occasional sprees. He said the doctors told him that he could not help it, even if he *tried*. May God have mercy on the doctors if they really did say this. Our readers are aware, of course, that I would not say, under any and all circumstances, that a man can by his own will power break off every evil habit; but I do say it is my belief, that, while there is life and reason, any person can, *with God's help*, be emancipated from *any* evil habit.

But a few hours ago a poor friend wrote me, telling of *his* struggles in breaking the bands of Satan. In his despair he was contemplating something that is, if not suicide, almost next door to it. Although a professing Christian, he said he had "lost his will power." Just as soon as he explained to me the circumstances I felt like rejoicing that I could furnish a remedy that would help him out of his troubles as safely and surely as you would help a man out of a millpond by taking hold of his hand. Then my enthusiasm was somewhat dampened because I remembered my remedy would require "will power." Please do not smile when I tell you that I wrote to him to change his diet to one of lean meat; cut off starch and sugar entirely. If he can do this he is saved; but, alas! it requires will power. By the way, when I meet either a man or a woman of late who has gone through several months on a clean lean-meat diet, I feel like lifting my hat to such, out of reverence and respect. The person who can control his appetite to the extent of cutting off the last crumb of bread, so that his diet may be absolutely *unfermentable*, has will power to fight almost any temptation that flesh is heir to. I do not know just what effect the lean-meat diet would have on intemperance; but I suspect it would take off a great part of the craving for intoxicants. If there is any one among our readers who can give me any information in regard to this matter, either for my own private benefit or for the public, omitting the name if he chooses, I should be very glad indeed to get such testimony. I want to know to what extent our diet is responsible for our peculiar besetting sins.

Now, then, dear friends, I suppose God leaves us all to choose. Shall we drift along in idleness and in shady inaction until disgust of life, and then suicide or imbecility, comes on? or shall we waken up and use our brains and muscles, and make things come into shape as they ought to? Sin is in the world. Shall we let it go on, or shall we say, "God helping me, this shall continue no longer"? There are illustrations all about us, showing what energy, perseverance, and vehemence will accomplish. There are also illustrations all about us of the result of letting things drag, and go as they happen. Shall we get along through life contriving to get rid of the precious hours God has given us, with the least possible exertion or trouble, until we slip into our graves? or shall we stand up like Christian of old, with our armor on, and rebuke sin and sloth and half-heartedness at every turn?

SELLING RECIPES FOR DOING THINGS.

Dear Gleanings:—In the Chicago *American Poultry Journal* for April, '97, page 122, is an advertisement headed "Bees for Nothing." I have not the $3.00 to throw away, so I do not feel like investigating it. The advertiser is A. F. Randolph, Green Valley, Ill.

Ionia, Mich., June 12. HARMON SMITH.

As it is the business of GLEANINGS to keep its readers posted in regard to every thing new that comes up in bee culture, we sent the three dollars. It is printed on page 11 of a little price list of fancy poultry. Here is the three-dollar recipe verbatim:

DIRECTIONS FOR TAKING RUNAWAY SWARMS OF BEES.

Prepare an ordinary box hive by having it sweet and clean; place a stick one fourth of an inch thick about six inches from the top across the inside of the hive and a similar one crosswise of the first, six inches lower down for supports to the comb. Now take a piece of empty comb or comb foundation and fasten to the inside of the top of the hive by melting a bit of wax and sticking the comb fast while hot; now drop a few drops of the sweet oil of anise on the comb and the inner walls of the hive; now fasten on the bottom-board, letting it extend an inch or two beyond the hive on the front side, leaving a slot four inches long and three-eighths of an inch deep for an entrance; on the first real warm day in May, when the bees begin to swarm, place your hive in a shady tree, not necessarily very high from the ground; the bees will swarm from the parent hive; and as soon as they settle they will send out scouts to look for a new home; and, if not successful, the swarm will make a flight and settle, and send out scouts again as before, and continue to move and scout until they find a hollow tree or some cavity that suits them, when they immediately take possession. Now, if you have a few hives scattered about through your orchard, and a swarm is passing within two miles, the scouts will find your empty hives ready for occupancy, and will lead the swarm to the hive. If your hive is secured firmly, it can remain in the tree until cool weather before removing.

Our readers will notice that, in the above, there is not a single idea that has not already been published repeatedly in our journals. Several years ago we had quite a discussion in regard to the matter, and many articles were published in regard to it. I confess that it somewhat revived my old enthusiasm in regard to decoy hives. But, hold on a minute! There *is* one new feature. It is the statement to the effect that, if a swarm passes within *two miles* of your empty hives, the scouts will find them. We did not know before that a swarm of bees keeps scouts out for two miles in every direction; and I am afraid we do not know it now. We have here another illustration of the fact that I have for so many years emphasized: No good thing ever comes, or, perhaps I should say, no *new* thing ever comes from those who advertise recipes or secrets for a certain sum of money. Now, if anybody else who takes GLEANINGS knows of any valuable secret offered for a certain sum of money, just let GLEANINGS know about it and we will enjoy it all together instead of sending three dollars individually for one and the same thing.

HIGH PRESSURE GARDENING

He shall be like a tree planted by the rivers of water; . . . his leaf also shall not wither.—PSALM 1:3.

I have before mentioned that my neighbor, C. J. Green, found a little spring on one of his lots. He piped it down into his dooryard, and near his greenhouse he has a little fountain. Now, during a severe drouth like the present there is not very much water—perhaps as much as would fill a rye straw or a little more; but even this small amount keeps two considerable tanks full, and the surplus runs the tiny fountain; and right where the overflow from this fountain reaches it, is a small Downing mulberry-tree. The tree is fairly filled with the most luscious mulberries I ever tasted; and the tree is making such a luxuriant growth that it is really a pleasure to look at it. While I stood enjoying it, just between sundown and dark, I was reminded of three things: First, that the Downing mulberry is a most delicious fruit when grown to perfection; second, that it seems to be a water-plant. Like the willow, it delights in water continually; third, the whole thing was a most beautiful reminder, by way of an object-lesson, of that wonderful verse in the first Psalm. We have a Downing mulberry-tree on our lawn, but the berries are small, and insignificant in flavor, compared with the one I have just spoken of. But I am inclined to think it is not altogether the water. Occasionally there are trees that bear larger and finer fruit than others. Mr. Green has already set some grafts on another mulberry-tree on his premises to see if he can get equally large and luscious fruit.

"HAPPY SURPRISES;" THE PORTER APPLE.

Nearly a year ago a niece made me a present of a luscious apple, so very large that I at once made a trip of investigation. She said she did not know the name of the apple; the tree was on the premises when they moved there. I was astonished to find that I had never before known of so large an apple, almost if not quite as early as the Early Harvest. I sent a sample of the apple to our Ohio Experiment Station, and they replied right off that it was the Porter. Last fall I sent to our nurseryman, Mr. Job Green, of Granger, Medina Co., O., for one-fourth dozen trees. Well, yesterday, July 8th, the timothy in our orchard was so high that we cut it and put it into the barn; and after the grass was out of the way, one of my Porter apple-trees, set out just last fall, and not more than four or five feet high, was found to contain two great beautiful apples almost ripe. Now, if you have never tasted this apple, plant a tree in your dooryard, in a good rich place, then you or your children will have a good lot of "happy surprises" in the way of a beautiful fruit when everybody wants it most.

THE FOURTH OF JULY, 1897.

This present year seems peculiar in at least two respects. First, it has given us the coldest day since the Weather Bureau was started, some 27 years ago; and on the 4th of this present month the thermometer registered the *highest* point (according to the Weather Bureau) in 17 years. On the north side of our brick building the thermometer registered half a degree above 100; but on the porch over at the house it was only about 97. The Weather Bureau reports it at their office, on top of one of the tallest buildings in Cleveland, somewhere about 99, if I am correct. It is hard to make a correct statement, because the surroundings have so much to do with the temperature.

Unfortunately—at least so it would seem—it was announced that your humble servant would give a talk in a church five miles away from my home, on Sunday afternoon. I did not want to take a horse out in such sultry weather, and, in fact, I did not want to ride in a buggy, so I rode on my wheel. Several urged that it was positively dangerous. But I knew pretty well it was not dangerous for me, and I was agreeably "surprised" to find myself much more comfortable on the wheel than sitting indoors in the shade. As my talk was about "happy surprises," my experience came in very opportunely. I left home at one o'clock, and got back about half-past three; so I "took in" the highest temperature of the torrid wave.

Well, the hot sun and hot wind did not hurt me at all (oh! I forgot; I do not know but it *did* make my nose a little redder than usual), but it cooked our great big Columbus gooseberries, and almost spoiled our crop; but some of the berries of smaller size, such as the Downing and Houghtons were harmed but little or none at all. Our new friend *Eleagnus longipes* was also roasted more or less by the heat. Strawberries, unless they had some sort of protection, were more or less cooked. And this reminds me that it is an excellent thing to have at least a part of your strawberries grow in the shade. The shade of a large tree is just what is wanted, providing you do not let the roots of the large tree take all the moisture from the strawberries. A sub-irrigating bed under the shade of a tree, with the bottom of the bed cemented so it will hold water, would fix it to a dot. I am inclined to think some growing corn on the south side of the strawberries would answer a very good purpose. I studied the matter in several localities on our grounds enough to be certain that, with a season like this, shade of some kind would be a profitable investment to the strawberry-grower. I have not had a chance to test plants on the north side of a building or a high board fence, but I think it would be just the thing. Of course, this is only for *late* strawberries. For early ones you want the sun at least the fore part of the season; but for *raising plants* during the month of July, even if you have plenty of water, some shade during the heat of the day would help matters along very materially.

GARDENING FOR JULY 15; WHAT CAN WE PLANT?

You can plant almost all kinds of beans (except the large limas), and they will usually escape frost, Henderson's bush lima included. Beets will do nicely if you have a market for table beets, or beets tied up in bunches. You can put out carrots, cauliflower, and celery-plants. Ford's Early sweet corn will do nicely if planted on good ground. Cucumbers are just in their element this hot July weather. Give them good rich ground; and if you have plenty of rain, and keep the bugs off, you will have a crop. Grand Rapids lettuce will do nicely, and will sell in almost any locality if you shade it from the hot sun. Have it in rich ground, and make it crisp and white. You can sow all sorts of onion seeds for sets; and the American Pearl may be sown now, not too closely, and left to stand over winter. The only trouble is its inclination to send up a seed-stalk in spring. But you can fix this by pulling out every one as soon as it begins to show a seed-stalk, and selling it as bunch onions—see our bunch-onion circular. If you want to make a plantation of the winter onions, now is just the time to do it. Gather the sets, and plant at once. Any of the early peas will make a crop if planted now; and in our locality we generally get large peas, like Champion of England, when sown before July 15. We are going to put in a lot of them right away. Radishes you may plant every day for the next 60 days; the same with spinach. If you have great big strong plants ready to blossom you can put out tomatoes now. All kinds of turnips can be sown now, but I would not put in a great many if you want them for table use, because they get too old in just a few days after they are just right; and, while I think of it, get in plenty of wax beans so you can supply the market until the time frost spoils them. Bunch yams and vineless sweet potatoes will usually make a crop if put out now with sufficient care so they commence to grow right away. You can also plant potatoes at this late date if you have some good seed already sprouted, having the sprouts not too long. Jersey Wakefield and Henderson's Early Summer cabbage-plants will do nicely if put out now. Late kinds will head up if the fall is favorable; and we consider it the very best time to grow cauliflower by putting out your plants by the middle of July.

Last, but not least by considerable, we consider July the finest month in the whole year to put out strawberry-plants if you have learned the knack of making them grow in hot weather. Potted plants, or plants taken up with our transplanting-machine recently illustrated, will go right along all right unless you have a tremendous drouth. I think it will pay every strawberry-grower to learn how to increase his stock of choice high-priced plants by planting in July. If the weather is very hot and dry, keep things moving by the use of plenty of water, and shading them with cotton cloth.

JADOO FIBER.

Doubtless many of you have read of this new material for florists and gardeners. We are using it for potted strawberries; and it is so much lighter than soil I have hoped that we might be able to send the new strawberries out in the shape of potted plants *by mail*. Of course, the postage will be more; but you will have a plant that will put out runners, and push ahead the very day you get it in the ground. When I have samples ready to mail I will let you know, and I will also report in regard to this new material, jadoo. We are also testing concentrated jadoo liquid. Permit me to add that jadoo itself looks very much like nice swamp muck. It costs at present about $30.00 a ton.

IS SWEET CLOVER A NOXIOUS WEED?

How to exterminate sweet clover after it has got a good start is something that I am very much interested in just now. If you or any one else knows of any practical method by which one can kill it out, almost everybody here, and especially myself, would be very thankful for the information.

Eight or nine years ago I bought some sweet-clover seed of you and sowed it on my own premises, and also along the public highway A friend of mine got some seed soon after, and he too sowed it along the roadside. Now the clover is pretty well set over perhaps five or six miles of the public highway. At first but little attention was paid to it, no one seeming to know what it was; neither had I the least idea what I was getting into when I sowed it. Now it is growing up along the road higher than the fences, and the farmers are becoming alarmed, and we are being cursed, criticised, and abused, some saying that we ought to be prosecuted.

There are scattering plants of the clover over a great deal more territory than that which I have spoken of as being well set; but that we have cut out mostly with hoes; some of the more thickly set places I have mowed, and then broken the ground with the plow. Whether that will kill it is a question, Some say the seed will lie in the ground for years, and then come up.

I am very sorry that I was instrumental in introducing something that is so unwelcome as sweet clover seems to be to the farmers here. I also own and manage a farm myself; but I do not care so much on my own account as I do for the ill feeling which it has caused among my neighbors.

Any information on this subject as to what extent I am responsible, or what I should do to kill it out, is what I wish. GEO. W. FAIR.

Chrisman, Ill., June 28.

My good friend, you and your neighbors are certainly making a big mistake. I have studied sweet clover all over the State of Ohio and in other States, but I have never yet found it in pasture lots, in meadows, or in cultivated fields.

I can not see why it should be called a noxious weed any more than common red clover, unless it is that horses and cattle must learn to eat it before they take to it as readily as they do to red clover. But this is not at all strange, for cattle in Florida will not eat *corn* until they have been taught. Sweet clover is in our neighborhood, along the roads, as high as the fences, *but nowhere else.* It grows on the dry hard clay banks by the sides of the railroads, where no other weed can find a foothold; but my richly cultivated ground is also right along by the railroad, just over the fence, and yet our boys will tell you they never find sweet clover as a weed anywhere. If you and your friends will cut your clover when it is knee-high, or a little more, you will find it will make excellent hay; and if it were really desirable to banish it from the roadsides, the matter is easily accomplished by cutting it off before it goes to seed. Teach your neighbors to *use* this valuable clover, and all prejudice will soon disappear. Put a fence around it and turn the cattle right in—that is, if cattle are not permitted on the roadside—and see how quickly it will disappear. If you want the ground for other crops, turn it under with a chain as you would ordinary red clover, and you will find it worth as much as or more than any other clover known, as a fertilizer.

Pass this journal around to your neighbors and I will send you more, or I will have some slips printed, to be handed out free of charge, if nothing else will cure this prejudice. I am surprised that you say nothing in regard to its value as feed, for I am convinced that some of your horses and cattle have already acquired a taste for it and a liking for it; and their "opinion" in the matter is certainly unbiased. I do not know why in the world you should go to the trouble of trying to cut off the thick old stalks with a hoe. If you really want to get rid of it, wait till next spring, when the old stalks will all be dead and gone; then plow under, pasture off, or cut the young shoots before they get too far along to be tough and hard. I can not believe the seed will lie in the ground for years; for if it did it would surely trouble us among our crops. We have between 15 and 20 acres under cultivation, and sweet clover is growing high and rampant all around my cultivated fields. Yes, it is at this writing, July 6, six feet or more, and has been growing so for years past, though we never find it in our strawberries at all, while other weeds are a terrible nuisance just about fruiting time. In traveling I have talked with others, and asked questions in regard to the habits of the plant; but I have nowhere seen it behave any differently from what it does here in Medina.

PUDDLING SWEET-POTATO (AND OTHER) PLANTS.

Friend Root:- I was in another part of the county a few days ago, and saw people there planting (or, rather, setting) sweet-potato slips. They do not use any water at all, and plant at any time during the day. Instead of watering they make a bucket of very thin mud and dip the roots of the plants in it when planting. They claim that the method is as sure as watering, and much cheaper. The only condition is that the plants should be raised in an open bed so that they may be rather tough. Those raised under glass would not do.

KILLING WEED SEEDS BY FERMENTATION.

You undoubtedly have had considerable trouble with weeds coming from the seeds in the manure you buy from the livery stables. You may avoid the trouble by having the manure thoroughly fermented before using it. Have it put in heaps as as large as possible, in a hollow cemented or well-paved floor. You may mix dead leaves, straw, rich dirt, or any thing you wish. Have it thoroughly watered twice a week, enough to prevent it from burning, and make it rot thoroughly. The surplus water that will seep through must be received in a hole or cistern, and pumped over the heap again unless you prefer to use it for irrigating purposes.

It is difficult to explain how it is, but the fact remains that the manure thus treated improves considerably in fertilizing value—it is estimated 100 per cent, or about; and, furthermore, the heat therein developed kills all the weed seeds and an immense quantity of noxious insects and other plant-disease germs.

In Switzerland, Belgium, and most parts of other well-cultivated countries of Europe, no manure is used without having gone through this process, which takes about three months. Another advantage is that the manure thus thoroughly rotted does not burn the vegetation in dry weather as the fresh manure invariably does. ADRIAN GETAZ.

Knoxville, Tenn.

Your suggestions are both good, friend G. Instead of using mud, however, for puddling the roots of the plants, a good many use a mixture of cow manure and dirt. In regard to fermenting manure to kill weed seeds, we have practiced this for years; in fact, we had a cistern made to catch the liquid manure, and a pump to pump it on the heap. The process is given in a little book sold by the O. Judd Co., entitled "Baumer's Method of Making Manure." It works all right, and the manure is all that is claimed for it, but it is an awful sight of work. We could not afford to ferment manure in this way for farm crops, nor even for garden crops, at ordinary prices. For making potting soil for florists, or for beds in intensive gardening, it is all right. If worked properly, the compost, when finished, is very much like the manure we find under old stables. Whenever I find where an old barn has been moved away, or where a manure-heap has remained for years, so as to be thoroughly rotted, I am willing to pay a good price for the fine compost. Another thing, the average American gardener does not take kindly to this working over manure-heaps. We have to get an old gardener from some of the old countries to work at it. For high-pressure gardening there is no question but it will pay. But we get into a fashion of rushing things so much that it is hard to take the time and trouble to prepare plenty of good old rich compost; and for many crops and purposes, manure just as it is taken from the stables answers very well. For spinach, lettuce, or any other crop where strong foliage is needed, fresh manure, just as it is dropped in the stables, seems to be even better. There has been some dispute as to whether all kinds of weed seeds are killed by the fermenting process; and I believe there has been a government bulletin issued on the whole subject.

ONIONS FOR WINTERING OVER IN THE OPEN GROUND.

The Whittaker onion did not stand the climate here, as they were all dead this spring. The Pearl, that I experimented with here, winter-killed also, but the Egyptian did nicely, and I shall want 2 or 3 bushels this fall. I wish you would give me your mode of culture of the White Multipliers; they do the best with me. A. P. JONES.

Brandon, Vt.

We manage the White Multipliers exactly as we do the potato onions. Plant them at about the time that farmers are sowing their wheat. They make quite a little growth by fall, and, as a rule, winter without any loss. This spring we have had our first trouble by their showing seed-stalks. We never had a seed-stalk on a White Multiplier before, and did not know it was possible. The only reason I can give is that we put them out earlier than usual last fall, and they made an exceedingly strong growth; but why this should put it into their heads to send up seed-stalks when they never grow seed at all (at least I did not know they did) is more than I can tell. We hoe and cultivate all of these winter onions in the spring, exactly as we would any onions; and the Breed weeder is just the thing for them after you once get the surface fined up soft and mellow. At present writing, June 16th, all of our onions that were wintered out are beginning to show signs of maturity.

HALF PRICE.

After June 10th we sell eggs from all our yards at HALF PRICE ($1 per 15). Eggs will be from our best pens, and handled with the same care early orders receive. Our breeds:

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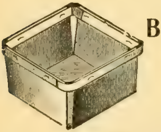

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Warranted queens, 75 cts. each; 3 for $2.00; per doz., $7.00. Select warranted, $1.00. Strong 3-frame nucleus, with warranted queen, $2.50. Safe arrival and satisfaction guaranteed. Circular free. Those who have never dealt with me I refer to A. I. Root, who has purchased of me over 850 queens.

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From the Queen Specialist.

Light Italians of the 3-banded variety, bred from the same strains that gave such universal satisfaction from 1885 to 1890. All queens warranted purely mated, and shipped by return mail if so requested. Price 75 cts. each. Address

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JUDGE E. Y. TERRAL & CO., Cameron, Texas.

Please mention this paper.

QUEEN, 60 cents; three or more, 50 cents; dozen, $5.50; tested young, 75 cents.

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Nothing in the market approached the value of these bicycles at the former prices; what are they now?

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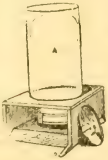

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CHAS. H. THIES, Steeleville, Ill.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

THE THREE NEW STRAWBERRIES—CARRIE, DARLING, AND EARLIEST.

When I gave prices on page 502, last issue, on these three plants, I overlooked the fact that, when I purchased them from Thompson & Sons, Rio Vista, Va., I was restricted, in offering them, to their prices. The Darling was a present to me, and under the circumstances it would ill become me to offer them for sale at less than their prices. In view of this, our prices for the future will be $2.00 per dozen for Carrie and Earliest; $3 00 per dozen for Darling. At the above price you may have potted plants by express or layer plants postpaid by mail. Earliest and Darling show such wonderful vigor that they have gone right through our severe drouth without any watering up to date, July 9; and we have, from our original half-dozen plants in September last, something like 100 fairly well-rooted. Of course, I can not tell how the Darling and Earliest may turn out with a more extended trial out in the field; but I am satisfied that, for extra early, they are going to be of great value. Carrie has been already sufficiently tested to warrant it a place, and the testimonials in its favor from our Ohio Experiment Station are enough to induce all strawberry-growers to give it a trial.

SOLD OUT.

We are sorry to say that, at present writing, we are sold out of both Carrie and Nick Ohmer. We are going to try hard, by the use of water and shading, to increase our stock so we can offer them again later, but we can not tell you how we shall succeed. We can furnish you all the rest mentioned on page 502 of our previous issue.

PRICES OF GARDEN PRODUCTS, JULY 15.

Wax beans are bringing 8 cts. per qt., all we can pick; early beets, 5 cts. per bunch weighing a pound, and the demand is greater than the supply. Early cabbage is 5 cts. per lb.; cauliflower the same; lettuce the same, demand good. Bunch onions, American Pearl, 5 cts. a 1-lb. bunch; demand beyond the supply; White Multiplier, ditto. American Wonder and Gem peas bring 5 cts. per quart; Stratagem, 8 cts. Radishes, when we have any, 5 cts. per bunch. Tomatoes, 5 cts. a qt. These are just beginning to ripen in our greenhouses. New potatoes are $1.00 per bushel, and the demand is beyond the supply. The above are all retail prices, where things are taken around to the houses every morning. Black raspberries bring 10 cts. per qt.; red ones bring from 12 to 14; currants, $1.00 per ½ bushel; gooseberries, 5 cts. a quart—slow sale.

NEW-CROP SEEDS AND PLANTS FOR SALE JULY 15.

First we have crimson clover of our own growing; but as the supply is limited and the demand large it will probably soon be gone; but we have engaged a large stock of home-grown new crop, and expect to be able to ship promptly during the whole season.

We have a great lot of strawberries getting rooted: but they are hardly sufficiently established to send out just now—at least not very many of them.

Winter onion-sets are just ready to gather, and now is the best time to plant them. Price 5 cts. per qt.; peck, 35 cts.; bush., $1.00. Whittaker onions, large size, qt., 10 cts.; peck, 75 cts.; bush., $2.50; small ones, qt., 18 cts.; peck, $1.25; bush., $4.00. This is the only onion that I know of that never sends up a seed-stalk. It really does not know how, and I am greatly in hopes it will never learn. The onions are great whoppers, and will keep better than any other onion I know of, unless it is the White Multiplier

We have White Multipliers now, quite hard and firm, that were harvested a year ago; but this onion has for the first time this summer sent up seed-stalks. We have carefuly "rogued" our onions that tried to send up a seed-stalk, and these are to be cooked (not sold for seed) so as to discourage this trait. White Multiplier is the same price as the Whittaker. I can think of no reason why our White Mhltipliers have sent up seed-stalks this season unless it is that they were planted rather earlier last season, and made quite a growth before winter. You know the season was very wet, and hence we had an unusual fall growth. Our American Pearl onion-sets will be ready to gather by the first of August. The price will be 20 cts. a quart; peck, $1.00; bushel, $3 50. If somebody else offers genuine American Pearl sets, *true to name*, any cheaper, we will make lower prices, and we will also make a rebate to anybody who has paid us a larger price. All of these onions are to be planted out in September. With plenty of wet the Multipliers may be planted now, and they can be taken up and divided and set again in September or October. I do not know why these beautiful Multipliers and potato onions are not more extensively used for the table. They are certainly easy to grow and easy to keep—at least in our locality.

TIME TO SOW BUCKWHEAT.

Please note our very low prices this season—a two-bushel bag for only $1 10. Sow from half a bushel to three pecks per acre. If the ground is good, half a bushel is plenty. The later the crop the better the yield, providing it does not get nipped by the frost. The heads fill much better in cold weather than in hot. In most localities it is usually safe if sown any time before the first of August.

When potatoes are bringing a dollar a bushel, don't let the bugs eat up the vines. Get up at daylight, when the dew is on, and dust them with a very little Paris green.

CONVENTION NOTICE.

MR. EDITOR:—The next annual convention of the United States Bee-keepers' Union will be held, in the main hall of Caton's Business College, corner of Main and Huron Sts., Buffalo, N Y., commencing at 10 o'clock A M., August 24th next, and closing on the afternoon of the 26th.

Papers are to be read by W Z. Hutchinson, R. F. Holtermann, E. Whitcomb, Hon. R. L. Taylor, Mrs. L. Harrison, R. C. Aikin, G. M. Doolittle, Dr. J. P. H. Brown, Hon Eugene Secor, G W Brodbeck, M. B. Holmes, A E Manum, E Kretchmer, and P. H Elwood; to which will be added the President's Address; and perhaps the General Manager and the Secretary may have something of interest to present.

The programs are now printed, and are in the hands of the Secretary. There are six bee keepers' songs, with music, in the program, and abundance of time is allotted to the discussion of all papers, and for the asking and answering of questions.

Any one not a member of the Union can have a program sent him by mail on receipt of 5 cents in stamps, by the Secretary.

Several of our well-known bee-keepers, such as A. I. Root, Dr. Miller, S. T. Pettit, and others, who are not on the program, will be present to help make the convention interesting and instructive.

It is probable that suggestions will be made at this convention in the line of so amending the constitution of the Union as to remove its objectionable features and add such other provisions as may seem desirable; and suggestions in this line by those not able to be at the convention can be sent to the Secretary, to be brought before it. Some suggestions have already been received by the Secretary, and others have been made in the bee-papers.

Those going to the convention should buy round-trip tickets to the Grand Army of the Republic encampment (not to the United States bee-keepers' convention), which meets in Buffalo during the last week of August. The G. A. R have secured a rate of one cent a mile each way in the territory of the Central Passenger Committee, which is included by Toronto, Canada, thence on a line to Port Huron, Mich.; all of the southern peninsula of Mich.; Chicago, Peoria, and Quincy, Ill.; St. Louis, Mo.; Louisville, Ky., and Pittsburg, Pa. The Western Passenger Association and the Trunk Line Association make a rate of one fare for the round trip in their territory, to places in the Central Passenger Association, from which points the fare will be one cent a mile each way; but tickets must be purchased to Buffalo from the starting-point. Inquire of your ticket or station agent in all territory outside of those named above for rates and the time the tickets are good for, for I have been unable to learn the rates in such territory, but presume they will be the same as those of the Western Passenger and the Trunk Line Association; but be sure to inquire of your ticket agent, as above suggested.

In the Central Passenger and Trunk Line territory, tickets will be good going Aug. 21, 22, and 23; and, if vised at Buffalo, will be good, returning, for 30 days.

Mr. O. L. Hershiser, of Buffalo, has charge of arrangements at Buffalo, and will attend to the matter of hotel rates. Mr. H. writes "I purpose obtaining accommodations in private families for all bee keepers who prefer such to hotels." Members of the Union can learn in regard to hotel rates by applying to the Secretary at the place of meeting. If known in time, hotel rates will be given in the bee-periodicals.

A. B. MASON, Sec., Station B, Toledo, O.

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Queens 50 cts.; nucleus, two-frame, with queen, $1 50; one-frame, $1.00; three-frame, $2.00.

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QUEENS BY RETURN MAIL.

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Second-hand Bicycles in Trade for Honey or Beeswax.

One '95 Victor, 24-inch frame, 64 gear, Morgan & Wright tires, in good running order, weight 28 lbs., $18.00. One ladies' Monarch, '94 pattern, Morgan & Wright tires, wood handle-bars, in good running order, weight 33 lbs., $15.00. One girl's wheel, '90 pattern, 24-inch wheels, cushion tires, $4.00. Will take white honey or beeswax at market quotations. Fuller particulars furnished upon application.

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Finally we have our dies completed ⅝, and in operation, making drawn foundation. We find that our hydraulic machinery for operating the dies is inadequate to the pressure for using the dies full size, and we are making pieces 4x4, just right to fill a section; and until we get more powerful machinery we are not prepared to furnish it larger nor in very large quantities, but such as we can furnish will be much superior to samples from the former dies—lighter and more delicate. It is already too late to test it in the production of early honey; but the tests on a late honey crop, which generally comes in more slowly, will be more severe.

We offer the drawn foundation in ½-lb. packages at 75 cts. with other goods, or 90 cts. prepaid; three pieces, 4x4, to fill a section, for 10 cts.: by mail, 12 cts.; 24 pieces, 50 cts.: by mail, 60 cts.; 10 pieces, 25 cts.; by mail, 30 cts. If you have prejudices or preconceived notions in regard to this drawn foundation, send for a sample from the last dies and see it and test it for yourself, and then you will be able to speak intelligently in regard to it. It is not too late to test it this season in very many localities.

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Extracted white clover, new, in small or large quantities cheap. Said honey is water-white, and very thick; in fact, a No. 1 article.

J. B. MURRAY, Ada, Ohio.

The Adels, The Adels!

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"Find $5.50 for queens. The best stock in 1896 out of 130 was an Adel. The best stock this year out of 165 is an Adel from an 1896 queen from you."

Adel Queens $1. New catalog now ready.

HENRY ALLEY, Wenham, Mass.

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Now is the time; queens are cheap.

Best untested Italians 50c, $6.00 per doz.; tested, 75c, $9.00 per doz. These are "Shaw queens." Try them. Every one knows they are good as the best. Orders filled by return mail, and satisfaction guaranteed.

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UNTESTED ITALIAN QUEENS, for the balance of this season, 45c: tested, 75c; select tested, $1.50 each. Sweet-clover seed cheap. Send for circular to **W. J. FOREHAND, Fort Deposit, Ala.**

RUBBER STAMPS should be used by bee-keepers. We make them at 5c per line. Ink pad, 2c extra. Less than half price.
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QUEENS. I have 500 untested, 3 or 5 banders, 45c each; tested 3 banders, 70c each. They are fine large queens, and are free from all diseases. Write for wholesale prices. M. O. office.
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If you do not now belong to any association, send $1.75 to us or to Secretary Dr. A. B. Mason, of the United States Bee-keepers' Union, at Toledo, Ohio. Station B. This will entitle you to a year's membership and protection in the Union, and one year's subscription to this journal.

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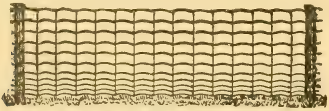

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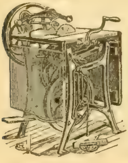

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Frank Wright."
"Laporte, Mich., June 28, 1897.

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Thos. M. Todd."
Payson, Utah, July 8.

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We will sell these wheels and take in trade beeswax or first-quality honey at market prices. We have only a few in stock; and after those we have on hand are gone we will not dispose of more in trade.

A beautiful catalog, showing these wheels up in full, sent on application.

THE A. I. ROOT CO.,
Medina, Ohio.

FOR SALE.—Large American fruit-evaporator cheap. Ezra G. Smith, Manchester, N. Y.

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United States Bee-keepers' Union.

Organized to advance the pursuit of Apiculture; to promote the interests of bee-keepers; to protect its members; to prevent the adulteration of honey; and to prosecute the dishonest commission-man.

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EUGENE SECOR, Forest City, Iowa.

Next Annual Meeting at Buffalo, N. Y., Aug. 24—26, 1897.

Honey Column.

CITY MARKETS.

NEW YORK.—Very little comb honey on our market. Some demand for white comb at 10@11. Extracted arriving quite freely; market rather weak; demand light the last few days. Southern average, common grade, 50c per gal.; better quality, 55@60 per gal.; California light amber, 4½@4¾; white, 5@5¼. Beeswax, some demand at 26@27.
FRANCIS H. LEGGETT & CO.,
July 19. Franklin and Varick Sts., N. Y.

MINNEAPOLIS.—Fancy white comb honey, 12@14; fancy amber, 10@11; No. 1 white, 11@12. Extracted, white, 6@7; dark, 4@5. Beeswax, 24@27. Stuff moving very slowly.
S. H. HALL & CO.,
July 21. Minneapolis, Minn.

ALBANY.—We have received no new comb honey as yet, but have advices of some on the way. It is too early to say much about prices. The crop in this State promises to be a good one; but on a recent trip through Vermont the producers claim that the outlook is poor. We still have a few cases of old honey which is going off slowly at 5@6c. Nothing doing in extracted.
CHAS. MCCULLOCH & CO.,
July 22. Albany, N. Y.

CINCINNATI.—There is a fair demand for extracted and comb honey. We have already disposed of quite a number of arrivals of fine quality. We quote 11½@13 cts. per lb. as the range for choice white comb honey, and 3½@6, according to quality, for extracted. Demand for beeswax is fair at 22@25 for good to choice yellow.
CHAS. F. MUTH & SON,
July 22. Cincinnati, O.

CHICAGO.—Some few lots of the new crop of white comb have come on to the market and sold at 12 cts. Lots not strictly nice may fail to bring this figure. Very little sale for extracted honey of any kind. Prices range from 5@6 for white, 4@5 for amber, and 3½ for dark. Beeswax steady at 26@27.
R. A. BURNETT & CO.,
July 20. 163 South Water St., Chicago, Ill.

DETROIT.—White comb honey (new), 10@11; no dark offered. Extracted, white, 5. Beeswax, 25@26.
July 21. M. H. HUNT, Bell Branch, Mich.

MILWAUKEE.—The demand for honey has not been very good here since our last. The receipts of new extracted have begun to arrive, which is much earlier than known for many years. The quality of some is not up to the standard, being thin, and lacking flavor. Market is almost nominal. Can quote choice white 1-lb. sections, 12@13, fair, 8@11. Extracted, in barrels, white, 5½@6, in cans and pails, 5½@6; dark, 4@4½. Beeswax, 25@27.
A. V. BISHOP & CO.,
July 20. Milwaukee, Wis.

COLUMBUS.—New white clover, 12½@13; old dark, 7@7½. Very fair demand for white-clover honey at above prices.
THE COLUMBUS COMMISSION & STORAGE CO.,
July 21. 409-413 N. High St., Columbus, O.

NEW YORK.—The condition of our market remains about the same. We have some call for white comb honey at 10@12, according to quality. Market on extracted rather weak owing to the increasing supply and faint demand. We quote Southern 50@55 per gal.; California light amber, 4½@5; California white, 5@5½. Beeswax remains steady and in good demand at 26@27.
HILDRETH BROS. & SEGELKEN,
July 20. 120-122 W. Broadway, N. Y.

DENVER.—We quote our honey market as follows: Fancy white, 11; No. 1 white, 10; No. 1 white extracted, 5½@6. The honey crop for Colorado promises to be very large and prices low.
R. K. & J. C. FRISBEE,
July 22. Lock box 1014, Denver, Col.

PHILADELPHIA.—Extracted honey arriving freely; also some very nice comb. Honey-buyers are slow to take hold, as they are looking for low prices, and are holding back for large arrivals later on. We quote No. 1 comb white, 10; fancy comb, 11@12; extracted amber, 4; white extracted, 5@5½. We are producers of honey, and do not handle on commission.
WM. A. SELSER,
July 23. 10 Vine St., Philadelphia, Pa.

KANSAS CITY.—The new crop of comb and extracted arriving, but the demand is very light; weather too hot; vegetables and fruit too plentiful. We quote No. 1 white, 1-lb. comb, 12@13; No. 1 amber, 11@12; No. 2 white, 10@11; No. 2 amber, 9@10; extracted white, 5@5½; amber, 4½@5; dark, 3½@4; beeswax, 25@30.
C. C. CLEMONS & CO.,
July 21. Kansas City, Mo.

ST. LOUIS.—Fancy white comb, 12@12½; Nos. 1 and 2 white comb, 10½@11½; dark to amber, 7@9; extracted white, 4¾@5¼; amber, 4¼@4½; dark, 3½@4. Beeswax, prime, 24@24½; dark, less. Since last quotations we have sold 4500 lbs. extracted amber honey at 4½. Our reports show a large crop of honey this season, but on account of high prices on sugar we look for a good manufacturing demand for honey, which is now taking hold.
WESTCOTT COMMISSION CO.,
July 21. 213 Market St., St. Louis, Mo.

CLEVELAND.—Old honey.—Fancy white, 11@12; No. 1 white, 10; fancy amber, 8; buckwheat, 7. Our first shipment of new honey just arrived, selling at 13 cts. No demand for old honey; however, we believe new honey is going to sell fairly well.
A. B. WILLIAMS & CO.,
July 26. 80-82 Broadway, Cleveland, Ohio.

FOR SALE.—Fancy extracted in 60-lb. cans, and fancy comb (Danzy sections) mangrove honey in 30-lb. cases. Cash offers wanted, f. o. b. here.
H. PRICE WILLIAMS, Miami, Florida.

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Soon after this number goes to press we expect to receive a carload of very fine water-white and light-amber honey from M. H. Mendelson, of Southern California. This honey is of exceedingly fine quality, very thick, and of special value to those who put up honey in glass to retail, because it does not granulate. It is in new 60-lb. cans, and we offer the water-white at 6½c per lb. by the case of two cans. Light amber, which is whiter than most eastern honey, at 6c. In larger lots we can make lower prices. Samples and further particulars to intending purchasers on application.
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W. Z. HUTCHINSON, Flint, Mich.

Honey Leaflet

Dr. C. C. Miller.

Why honey is more wholesome than cane sugar.

Honey as an article of diet; honey cooking recipes.

This leaflet is written for the benefit of consumers, and is put out at an extremely low price so that honey-producers may distribute them free to their customers. Prices: 10, 5c; 100, 20c; 500, 75c, all postpaid; 1000, 75c, carriage extra.

The A. I. Root Co., Medina, O.

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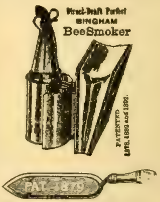
Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO.

VOL. XXV. AUG. 1, 1897. NO. 15.

STRAY STRAWS FROM DR. C. C. MILLER.

MR. HARBISON has set out a large plantation of the black (or ball) sage, and finds the profits exceedingly large.—*Prof. Cook, in American Bee Journal.*

MR. EDITOR, on p. 525 you speak in what seems a commendatory way of replacing brood-combs with foundation when the combs become dark. Do you really mean that?

POPE LEO calls honey "that celestial gift." [The pope is right. No other sweet, pure and simple, can be used for direct consumption without some special manipulation on the part of man.—ED.]

SOME POINTS given in "Musings," p. 514, confirm the opinion that, the riper and thicker honey is, the less inclined to granulate; and yet it is sometimes insisted that thickening hastens granulation.

HONEY-SALVE is recommended by Dr. Kneipp as an excellent dressing for sores and boils. Take equal parts honey and flour, add a little water, and stir thoroughly together. Don't make too thin.

THE *Southland Queen* reports Dr. Stell, in Mexico, getting $1 a section for honey, a total of $1750 from ten colonies. Even cutting that in two to make it American money, it makes $87.50 per colony. Not so bad.

THE *Leipziger Bienenzeitung* cites a case to prove that bees gnaw wax from old combs and carry it into the hive on their legs. I think that is nothing uncommon; but is such wax ever used except as a substitute for propolis?

J. F. MCINTYRE keeps his 600 colonies of bees in one apiary, says Prof. Cook, in *American Bee Journal*. What can't they do in California? [This is remarkable. In most localities in the Northern States, 125 colonies at the most would be too many.—ED.]

THE ANTICIPATION of a big crop everywhere because white clover is so plentiful is likely to amount to a scare. When the total honey crop is footed up, I doubt whether the figures will be as large as a good many are now anticipating. [I am beginning to think the crop is not going to be as large as we at first expected. See editorial on this point in another column.—ED.]

I DON'T KNOW of a man in the ranks of bee-keepers to whom will go out more kindly wishes from all for a happy outcome of his recent matrimonial venture than to my dear friend Prof. Cook. Blessings on his head. [You are right, doctor. GLEANINGS wishes the professor blessings and joy.—ED.]

PFARRER FLEISCHMANN put a thermometer in 8 different colonies in winter, and found a different temperature in each. The thermometer rose 6° to 8° on feeding, but settled back to its former place in a few hours. [Doctor, why didn't you tell what the temperature was in the cluster during winter? I suppose it was somewhere about 70 Fahr.—that is, in the very center of the cluster itself.—ED.]

HAVING REPORTED that I never saw laying queens fight, I thought I'd give the matter a severe test. The other Saturday I put six queens in one cage. They seemed to quarrel more or less throughout the day, but in the evening all appeared alive and well. On Monday morning, however, one lone queen was left to tell the tale. [This is interesting. And now the question arises, Was the sole survivor the fittest? She doubtless was the survival of the strongest.—ED.]

IT'S NOT WONDERFUL that, in a certain location, white clover should be more plentiful in 1897 than ever before. But it is decidedly remarkable that this should be so generally the case all over. Wonder why. [Yes, why? We can only guess that the abundance of rain, and cool weather in the early spring, had something to do with it. But after all, this does not entirely explain it, because we have had cool wet springs before, without a remarkable showing of clover following.—ED.]

BOTTOM STARTERS at Medina, you say, Mr. Editor, were about ½ inch. *My* bees are more inclined to tear down such narrow starters; ¾ deep are more respected, and I'm not sure they curl worse. But I'm rather expecting to use drawn foundation for bottom starters, even at the present high price; ½ inch of that might work all right. [A great many of our half-inch bottom starters did curl over. If they had been ¾ inch I am afraid they all would have done so. Perhaps our foundation was *too* light.—ED.]

DO YOU REMEMBER how some vigorously protested that wired brood-combs would be a failure, and challenged the production of a single wired comb with brood all over the wires? It makes one smile after seeing hundreds of such combs, and I'm wondering a little whether some of the protests against drawn foundation will not turn out the same way. [When the wiring of combs was first talked of it was before my day in active bee culture; but I have no doubt that what you say regarding it is true. Why will human nature be so obtuse and contrary?—ED.]

A LUBRICANT by B. Rietsche is as follows: Put 2 oz. soft soap in a little sack. Stir the sack in 5 quarts of warm water till the soap is dissolved, then add 5 quarts cold water. The plates of the Rietsche press are plunged into this liquid, and by this means 150 sheets of foundation are now made in an hour. I should want section foundation well rinsed. [If the Rietsche press must be immersed in a fluid every time a sheet has to be taken from it, I should question very much whether there is more than one man in the world who could get off anywhere near 150 sheets per hour.—ED.]

J. B. GRIFFIN writes that foundation was shipped to Georgia from Medina, and the paper slipped to one side, leaving a margin of ¾ inch without paper. The papered part was all right, but that ¾ inch was one solid piece 8 inches thick. That settles it that foundation must be papered to stand great heat in shipment. The time of year may have something to do with it. But I'd feel safer with the paper for the South. [I have been talking with young Louis Dadant, of Dadant & Son, regarding the advisability of leaving paper out of foundation. He shook his head very decidedly, adding that they could never think of doing it. We never considered the matter seriously, any more than to hold ourselves in readiness to ship without paper to those who specifically requested it.—ED.]

DID YOU ever notice that an old black comb will start robbing much sooner than a snow-white section? In a harvest, when you can safely leave a super of sections exposed all day long, it isn't best to have brood-combs standing around. [I for one never noticed that old black comb would start robbing quicker than honey in sections; but I have noticed that honey and brood together would start the bees much quicker than either alone; and when once started the bees are far crosser than when robbing from honey alone. I have observed, also, that the mutilation of brood, for instance the uncapping from drone brood, very often makes the bees decidedly savage. When destroying drone brood I am careful to have the smoker well going, and work rapidly enough to prevent bees robbing.—ED.]

A SECOND STORY of brood-frames filled with foundation was put over colony No. 63, so the queen could occupy it for brood. Instead of that I found eight frames of honey sealed solid from top to bottom. I said, "I'll have that in sections." I uncapped the honey and alternated the frames of honey with the frames of brood, then put sections over. What do you think? Those pesky bees coolly sealed that honey all up again! [Without trying exactly the same experiment, I should be inclined to believe that the putting-in of the frames of foundation in alternation would have a decided tendency to cause the bees to do exactly what they did do. If it is not too late, suppose you try the experiment of leaving out frames of brood, and putting a super on top. While I do not know that they would carry the honey above, they would not, I opine, be in as great a hurry to cap it up again in the same combs.—ED.]

I'M NOT OVERSTATING, I think, when I say the clover bloom was 50 per cent greater this year than ever before. But I'll get no crop in proportion. Two of my three apiaries have suffered from drouth. [Wherever there has been some drouth, the crop of clover honey will, of course, be diminished in proportion. There has been no drouth in this vicinity; and yesterday, July 22, when I was at the out-yard, and at Mr. Vernon Burt's also, the bees were bringing in honey heavily. A good portion of it was probably coming in from red clover; but frequent rains have seemed to give even white clover a new start. A week ago I supposed the honey season had closed, or at least it ought to have stopped; but in the mean time bees have taken supers of the drawn foundation, filled them with honey, and capped them over. Supers containing foundation only have scarcely been touched. This goes to show that the flow from clover is light.—ED.]

O. O. POPPLETON rightly objects, p. 517, to wide bottom-bars with a space between comb and bottom-bar. But I'm getting my combs built down solid to the bottom-bar, and so far am well pleased with bottom-bars 1⅛ wide. I've been told that, in time, the bees will dig out a space between comb and bottom-bar—a prophecy which I'm hoping may turn out to be false. [I do not know but you may think I am fickle; but since the question of wide and narrow bottom-bars has been brought up I have been watching the matter very closely. In answer to a correspondent in another column I expressed myself as believing that it was a mistake to change from narrow ⅜ bottom-bars to wider ones, but at the same time admitted that the one objection to the narrow bars was that the bees would build clear past them to the first set of frames below. Well, yesterday, July 22, when I was at the out-apiary I took hold of an extracting-super, eight-frame, full-depth, and attempted to lift it off the hive. To my surprise it seemed to be fastened down with burr-combs. I tugged and pulled until I got it loose. Quite by accident half the frames on the one side of the super contained *narrow* bottom-bars, and the other half were regular ¾-inch-wide bottom-bars. Examination showed that burr-combs had been attached to every one of the frames first mentioned; but there was not a burr-comb under the other half of the super where there were bottom-bars ¾ inch wide, and yet the combs were built clear down to them. In case of the narrow bars, the bees had extended the combs clear past them, and attached them solidly to the top-bars of the frames below.—Ed.]

GRADING HONEY.

Defects of the Washington Grading, Chicago Grading, and the Gradings Recently Proposed in Gleanings.

BY B. WALKER.

Friend Ernest:—I see from the last issue of Gleanings that the matter of grading honey is once more up for discussion, with a view of reaching a speedy solution. Fearing that undue weight has been given to the changes I have proposed, as you have in your final comments stated so kindly and yet so emphatically, and believing that no set of rules ought to be adopted that would fail of receiving our approval, and as both you and Dr. Miller seemed inclined to favor, in the main, the proposed changes, and as I must say that neither set of rules as modified would be sanctioned by me, and realizing that it is very important that no serious mistake be made at this time, I am impelled to ask another hearing.

Yes, I have a confession to make and an explanation to offer; and at the risk of being regarded as fickle-minded, not to say dishonest, I propose, with your permission, to make the one and offer the other at this time.

No, Ernest, the rules you have published as "Walker's Amended Washington Rules" do not now nor have they at any time fully set forth my views or exemplified my practice in grading honey. Do you ask why I offer them, then? I will tell you. I have been very desirous to see some change, at least, made for the better in the rules already in force; and in proposing the suggested alterations, like an old-party politician preparing his platform, rather than a "*dyed-in-the-wool*" third-party man of thirty years' standing, who has never once allowed expediency to stand in the way of principle in matters political, I weakly allowed myself to offer such changes as I considered would stand at least some show of being adopted. Still, bear in mind what friend Hutchinson had to say of the Washington rules, and the weight you had given his views at the time; and not forgetting that, at the time of the adoption of the original rules for grading at the Chicago convention, the requirements of which were far more exacting than the Washington rules, when, as a member of the committee for preparing these rules, I was not even allowed to read to the convention those I had drawn up for its consideration, and recalling, too, that when, a little later on, the rules prepared by friend Baldridge were rushed through the convention (my vote being the only dissenting one), I had the temerity to ask how many members of the convention had ever really raised, graded, and marketed five thousand pounds of comb honey, I was promptly called down by the chairman of the committee on rules for grading in these terms: "We don't propose to have this convention run by one man; and I will have you to understand that we know how to grade honey, even if we don't know how to raise it." *

Realizing, too, that the alterations I should propose were to run the gauntlet of Dr. Miller's criticism, who, as chairman of this same convention, failed to recognize the request to have my proposed rules even read,† I naturally felt reluctant to propose changes which would in all probability fail of adoption at this time. Believing now there is a real determination to adopt something practical, I wish, with your permission, to state more fully what my views and practice really are.

Right at the outset I wish to say that I agree most heartily with Miss Wilson in the view that the words "the comb unsoiled by travel-stain or otherwise" should be stricken out of the description of the fancy grade. In fact, I have not for many years past allowed a slight soiling of the comb surface only to exclude a section from the fancy grade; but at the same time I have uniformly kept such sections by themselves, and put the snow-white combs in a separate grade, which I have termed "Extra Fancy."

When snow-white combs, because of some slight defect, had to be excluded from the "Extra Fancy" grade, I have made a practice of keeping such sections in separate cases. Such cases also, in crating for shipment, and in distributing on the market, have been grouped together, so that the contrast in the color of the cappings would not attract attention.

I have found, by long experience in many different markets, that the important thing is to keep the snow-white combs separate from the slightly soiled ones, although not one grocer in a hundred or one consumer among ten thousand will ever object to the latter as not being fancy. Right here I will affirm that not one among all of the exhibits of honey at the last World's Fair—yes, I will go further, and say not one case in these exhibits that were the admiration of thousands, and that finally were awarded medals, but was open to criticism in this matter of slightly soiled combs, *if perfect in other respects;* and really that exhibit which received the highest praise of all, doubtless on account of the faultless filling, sealing, and fastening, was most deficient of all in the eyes of the expert in this one particular—"slightly soiled combs." As I had occasion to handle over section by section while grading thousands of pounds taken from different State exhibits, and was obliged to make in every instance four different grades, very little of which found a place in the extra-fancy grade, even with my lax system of grading; I ought to know what I am talking about.

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* I afterward had the pleasure (with his consent) of grading this man's World's Fair exhibit, which he often referred to as the finest on the ground, into five grades according to my ideas of grading.

† It is no more than fair that I should state here that the doctor soon afterward wrote me that the slight was not an intentional one.

Right here it occurs to me that the only reason why friend H. did not have a single complaint against the Washington rules was because nobody ever made any practical use of them; but if anybody attempted to do so he evidently thought best to ignore them altogether, and *keep perfectly quiet*.

I can scarcely agree with Dr. Miller in the view that the even thickness of combs, with reference to the fancy grade, needs no mention; and if he will try his hand at grading a few tons out of that large portion of the crop which is raised without the use of separators, I think he will find reason to change his mind. The word "comparative" that he objects to, however, does not suit me either; but it was used as a concession to brevity. My preference is for more definite terms, even if more space is required. Neither can I see the propriety of inserting the words "outside of wood," etc., with reference to scraping free from propolis. I am aware that it is seldom that the inside of a section requires attention on this account, but occasionally clots of bee-glue on the inside of edges of sections are very noticeable, and should be removed.

In my faith and practice, not less than four grades are required in order to comprise the great bulk of marketable honey. These I have named as follows: Extra Fancy, Fancy, No. 1, No. 2.

EXTRA FANCY.

All sections to be well filled, combs straight, not varying in weight more than two ounces in any one shipping-case; the combs of uniform color, of nearly even thickness, firmly fastened to four sides, and unsoiled by travel-stain or otherwise; all cells sealed except the row next to the wood; sections must be new and neat.

FANCY.

Like Extra Fancy, except the combs may be slightly fastened to or detached from the bottom, and not perfectly straight. The entire comb surface may be *very* slightly or half of it slightly soiled; not to exceed two cells may contain bee-bread; not to exceed half a dozen may be unsealed, or contain light-amber honey, and the weights vary three ounces in any one shipping-case; sections may be slightly stained, but the wood must be reasonably neat.

NO. 1.

Like Fancy, only combs may be somewhat but not *very* crooked; vary in weight four ounces in a shipping-case; one-eighth part of comb contain light amber honey, an equal amount of comb surface soiled or unsealed, or the entire surface slightly soiled; half a dozen cells of bee-bread may be present, and the sections may be somewhat but not much stained or soiled with propolis.

NO. 2.

Like No. 1, but combs may be more crooked and uneven, and not over three-fourths filled; but any one section must weigh half as much as the heaviest section in the case. Twice as many cells of bee-bread or amber honey are permissible; one-fourth part of the comb may contain amber honey, or an equal amount of comb surface may be unsealed or much soiled, or the entire surface considerably soiled.

Supplementary to these rules I make use of a list of defects somewhat as follows:

A slight soiling of a small portion of one side of the comb surface; a very slight soiling of one entire comb surface; half a dozen cells of light-amber honey on one side of comb near the wood, or half that number in the body of the comb; a cell of bee-bread; a couple of unsealed cells on one side of the comb inside of the outer row; comb detached, or not firmly fastened at the bottom; wood slightly stained or soiled; comb not perfectly straight in the absence of separators; a slight crack or marring of the comb surface.

The presence of any one of the above-mentioned defects in a section does not exclude it from the extra-fancy grade. In addition to those already mentioned as belonging to these grades, any two of them are to be allowed in the fancy grades, and all of them in the No. 1 grade.

Doubtless this will appear a formidable list of defects to tolerate in the fancy grades; but in actual practice, few of them are present in any one case, and, where present, are noticeable, as a rule, only to the expert.

Whether this method of grading will meet with the approval of bee-keepers, remains to be seen. It is at once evident that, if generally adopted, it will result in placing a large portion of the crop (that under present rules would find a place in No. 1 grade) in the fancy grade, while another portion will stand a show of selling at an extra price by taking rank as extra fancy.

When I tell you that I have been frequently informed by jobbers that my No. 1 honey averaged better than that they frequently bought for fancy, that my fancy grade has not failed to suit hundreds of particular customers among retail grocers, and that I have never been able to get a sufficient supply of the extra-fancy grade to meet the demands of my most exacting patrons, you will see that I for one at least have no occasion for adopting some other system at present.

I am aware that these rules will be regarded by many as altogether too prolix. At any rate, you can see that the concise ones that have been in force for four years past have been any thing but a success; and I venture the opinion that any set of rules, no matter how worded, if equally brief, will fail of being of practical use. To my mind, it is a case where mere brevity has no particular merit.

Even with the lengthy set of rules I propose, unless a 5th grade is made use of, a great deal of marketable honey will have to be thrown out; and even the expert will often be puzzled to find a place for choice honey that has no adequate description in these rules. Of course, a good deal will have to be left to each man's judgment; but where experts differ, it will be of little consequence where certain sections are placed, as no one will kick, and the difference in the outcome to the producer will be slight.

By the way, I notice you made a mistake in stating the price per pound I offered in my ad't which you were afraid to publish. It was only 25 cts. per pound, and the offer referred to the rules adopted at the Northwestern convention held at Chicago, instead of to the Washington rules, the former being the more strict in their wording. See the *Review*, Vol. V., page 18. Still, I have no doubt I should have been perfectly safe in offering $25 instead of 25 cts. per pound for the grade described.

[Since the above was in type the following has come to hand.—ED.]

I find that, in my hurry to have my letter on grading reach you last week, I have overlooked several important points which I wish to mention. As the rules are intended for use in grading honey of all shades of color, it will not answer to use the terms "light amber" or "amber" as though they were describing defects; therefore the words, "next darker in color," should be substituted wherever I have used these terms.

Again, three terms are not enough to properly designate color in the different grades. There are at least half a dozen clearly defined shades of color between white and dark, to be frequently met with in handling a crop of fall honey; in fact, I have had occasion to distinguish nearly a dozen different shades of so-called amber honey, in handling a single lot; and while I regard straw color, as applied to that next darker than white, as the better term, and think five shades not too many to recognize, perhaps the terms "white," "light amber," "amber," and "dark," will cover the ground.

Please add to the list of supplementary defects, an empty or partly filled cell; also that, where a section would otherwise take rank in the first grade, the presence of a pronounced defect not already specified in this list shall place it in the third grade; or if it would otherwise be placed in the second grade it shall be graded as No. 2, or fourth grade. For instance, a section whose only defect is a considerable discoloration of the entire comb surface, or a still greater soiling of half the surface, or one with, say, half or two-thirds of the surface unsealed on one side; one with one-fourth part of the comb on one side half filled; or an eighth part having empty or nearly empty cells; one with a mar covering, say, a square inch of comb surface; or a crack across the surface of the comb; a section badly discolored in the wood, or considerably soiled by propolis; or one containing honey not uniform in color. Such combs are good enough for the No. 1 grade; and where the soiling of comb surface is still greater, or even half of the entire surface is unsealed, or other defects also present that would throw them into a second grade (fancy), they should be placed in No. 2 grade.

The fancy grade should be altered so as to include as many half-filled cells as unsealed ones; also as many empty or nearly empty ones as cells of bee-bread. No. 1 should include all combs firmly fastened to two sides; also as many partly filled and empty cells as are allowable of unsealed cells and cells of bee-bread respectively. No. 2 grade — the presence of all of the defects allowable in the No. 1 grade, in any one section, should not debar it from the No. 2 grade.

Evart, Mich., July 12.

[Mr. Byron Walker is an extensive producer and a honey-seller. When his own crop is disposed of he buys largely from others, and there is not a producer in our land, if I am correct, who comes anywhere near selling as much honey in a year as does he. He is therefore eminently fitted to speak from the standpoint of both the bee-keeper and honey-seller.

Editorially I have referred to the subject of grading. The rules that I there propose were drawn up *before* the article above came to hand; and while I believe Mr. Walker is as competent as any man in our ranks to speak on the subject of grading, I can not help feel- that his rules are too complicated for the great mass of bee-keepers. I should be glad to have the commission houses express an opinion on the merits of the various rules that have been proposed—that is, which set, in their judgment, would be the most practical and feasible to apply in every-day practice.—ED.]

* * *

GRADING, AGAIN.

Only Two Grades Necessary.

BY F. GREINER.

I should consider it a mistake, if, in our rules for grading, Dr. Miller's proposition to establish more grades than two should be adopted. Two grades are fully enough—as many as dealers and producers want to bother with, I believe.

I have no particular objections to the Washington rules, and still would not want to adhere to them to the letter. My idea is, that fully half of all the comb honey produced by the up-to-date bee-keeper should go into the grade "Fancy;" the other half, or less, should find place in "No. 1," which, however, is a misnomer for that grade. Perfection is a rare thing to be found, and I am satisfied that these two grades should be much more flexible than our Washington formulators would have it. Let the new rules be so formulated as to conform to the honey as it really exists, and not to an imaginary product. Unless this is done, the producer will be obliged to modify them to fit his case. In my judgment, one or two cells of bee-bread do not condemn an otherwise perfect section of honey; nor would a dozen unsealed cells, nor a slight bulge caused by the knot-hole in a separator. This is getting down too fine.

When Mr. Hershiser demanded of us New York bee-keepers our product for the World's Exposition in the fall of 1892, I for one could send him only what little I had left of my crop—a somewhat imperfect lot. The next year he wanted to replace the old honey with new, which was all right, and he sent us his specifications as to what the honey should be.

He was so exacting in his demand that I could scarcely find six sections to answer in my whole crop, and, consequently, sent none at all. Consumers in general are, fortunately, not so hard to please, and will take in these little imperfections as a matter of course.

That the wood part of the sections be free from propolis, no matter what the kind or grade of the honey, need scarcely be specified; for no wide-awake honey-producer will crate his honey without first scraping the outside of the little boxes; that every sign of stain be also removed I hardly think will be necessary, perhaps not even desirable—at any rate, not practicable.

I also believe that three different kinds of honey are enough in our grading system; viz., white, amber, and dark. Good judgment will tell the shipper where to place the few sections of mixed honey; and if he classes them in with the lower grade he will neither harm the consumer nor himself materially.

Naples, N. Y., July 19.

* * *

THE PURE-FOOD LAWS OF ILLINOIS.

Present Laws Strong Enough.

BY HERMAN F. MOORE.

Mr. Root:—In order that the readers of GLEANINGS may see what the Illinois law on adulteration is, I copy the same here verbatim:

> CRIMINAL CODE, § 471: Be it enacted, etc., that no person shall mix, color, stain, or powder, or order or permit any other person in his or her employ to mix, color, stain, or powder any article of food with any ingredient or material, so as to render the article injurious to health, or *depreciate* the *value* thereof, with intent that the same may be sold; and no person shall sell or offer for sale any such article so mixed, colored, stained, or powdered.
>
> § 473. MIXED ARTICLES TO BE MARKED.
>
> No person shall mix, color, stain, or powder any article of food, drink, or medicine with any other ingredient or material, whether injurious to health or not, for the purpose of gain or profit, or sell or offer for sale, or order or permit any other person to sell or offer for sale any article so mixed, colored, stained, or powdered, unless the same be so manufactured, used, or sold, or offered for sale under its true and appropriate name, and notice that the same is *mixed or impure* is *marked*, *printed*, or *stamped upon each package*, roll, parcel, or vessel containing the same, so as to be and remain at all times readily visible; or unless the person purchasing the same is fully informed by the seller of the true name and ingredients (if other than such as are known by the common name thereof) of such article of food, drink, or medicine, at the time of making sale thereof or offering to sell the same.
>
> § 475. PENALTIES FOR VIOLATIONS HEREOF.
>
> Any person convicted of violating any provision of any of the foregoing sections of this act shall, for the *first offense*, be fined not less than *$25.00* nor more than *$200*. For the *second offense* he shall be fined not less than *$100* nor more than *$200*, or confined in the county jail not less than *one month* nor more than *six months*, or both, at the discretion of the court; and for the *third* and *all subsequent* offenses he shall be fined not less than *$500* nor more than *$2000*, and imprisoned in the penitentiary not less than one year nor more than five years.

Now in regard to Ernest's "better pure-food laws" on page 493, July 1, he says, "Its first work should be to work for the passage of pure-food laws in every State in the Union where such laws are needed." Now, I am not familiar with the laws of other States, for every State is a law unto itself; but I think here in Illinois Mr. Dadant has hit the nail on the head when he says, "Is it really necessary to have more laws than we now have to prevent the sale of *glucose* under the *label* of *honey?*" I will use his own words in his remarks in the above article, and say, "If such laws as are already on the statute-books were rigidly enforced" (adulteration would be almost absolutely stopped). The words in parenthesis are mine. Dadant further says, "In Ohio—because we have an energetic food commissioner," "it is very risky business to handle adulterated honey." Now, in my view the E. F. Com. above is "the whole thing." It was my good fortune, in 1887 or '88, in Tiffin, O., to listen to General Hurst, of Chillicothe, O., then the Ohio Food Commissioner. A finer, grander old man it has never been my pleasure to meet. He lectured on cold storage in keeping apples, and said that a perfectly sound winter apple could be kept five years under the most favorable conditions of cold storage as arranged especially for apples. Now, my impression of Gen. Hurst is that he made it redhot for the adulterators, and that, in my opinion, is the true and only solution of this *mixing* question here in Chicago. If we could have our own Dr. Miller as State Food Commissioner, at a reasonable salary of, say, $3000 a year, so he could afford to give his whole time to it, I think the adulterators would soon all be in the State prison or some other prison. Under the law as it stands, prosecution must be started at the instance of some one interested, and is formally instituted by the State's attorney in each county. After the law as it stands has been given a thorough trial, if the results are not satisfactory the law should be amended so as to provide for the appointment of a pure-food commissioner.

In my opinion the only way to eradicate this evil of mixing is to go at it under the present law, with hammer and tongs — first the wholesale grocers and syrup - men and then the retail grocers. I am with this movement heart and soul. I suppose I have sold more honey to families in Ohio, Indiana, and Illinois than any other man in the country, beginning in 1887, and making for nearly ten years a specialty of it; and it is my deliberate opinion that, if adulteration and the suspicion of adulteration could be wiped out, the sales of honey for family use would be more than doubled.

Chicago, Ill., July 5.

[I had been informed, and I thought reliably, that the laws of Illinois on the subject of adulteration were so loose as to make it almost impossible to secure conviction; but I do not see how the text of the laws above given could be improved. I therefore acknowledge that Dadant was right and I wrong. As Mr. Moore says, it is not the want of a good law, but the want of an energetic food commisioner, such as we have here in Ohio. I make the suggestion that the General Manager of the U. S. B. K. U. learn who that functionary is, and then prod him up a little in regard to his duties. If he replies that there is no adulteration, let us set about it immediately to secure samples in the open market, and have them analyzed. If they prove to be adulterated, bring them before the proper officials, and see that the guilty parties are brought to time. Mr. W. A. Selser, an expert chemist, of 10 Vine St., Philadelphia, will make a qualitative analysis of suspected honey for $1.00. I believe it would be a good idea for the U. S. B. K. U. to set Mr. Selser at work at once; and I would therefore suggest the wisdom of the General Manager directing Mr. Moore to procure a dozen or so samples of doubtful honey, and have the same forwarded on to Mr. Selser for analysis. My! with such a law as we have above, we are foolish if we do not avail ourselves of the opportunity to strike a blow.—Ed.]

* * *

THE UNITED STATES BEE-KEEPERS' UNION.

BY SKYLARK.

Dr. A. B. Mason:—I send you two dollars and fifty cents as my membership-fee (two years and a half) in the United States Bee-keepers' Union—not the little Union whose income last year was only $38.00, but the great United States Bee-keepers' Union, just born, but rushing on to manhood with giant strides—the Union whose income this year will overleap $3800. The *little* Union is dying. Its death-knell began to toll at the Lincoln convention. Within two years it will be only a memory of the past. Why, then, give up the name of "Union"? We want no "league," no "alliance," no "association." We will stand by the name of "Union," so dear to every American heart. If our dying little sister society kicks—well, just let her kick her last. It will soon be all over. Then there will be but one union—defensive, offensive, and protective—a union that will make one grand army of united bee-keepers. Dr. A. B., here is my two dollars and fifty cents.

Room for you, stranger? Yes, if you are quick about it; for who knows how soon our coffers may be full? and then you would be barred out.

I might explain here that a coffer is a large hole in the ground, with an iron door and a big bulldog sitting on top of it. Dr. Mason has his whole garden planted to coffers and bulldogs, as witness the following dispatch:

Toledo, O., June 28.

Dear, dear Skylark:—In strict accordance with your suggestion I have planted my whole garden to coffers and bulldogs. They are coming on finely, as I am pushing them on the high-pressure-gardening principle, and the dollars are rolling in. A. B. M.

Yes, stranger, come in; come in *now*. Your dollar and mine, with thousands of others, will do a world of good, not only while we live to enjoy the profits thereof, but long after we lie sleeping, no matter how far apart, together in the dust. Yes, come in. We will unite with the millions who are now clamoring for pure food. We will get there, and get pure honey too.

But, one will say, "What good will stopping adulteration do me? They can not adulterate comb honey, and I produce nothing else."

Well, if I were a double-geared idiot that is just the way I would argue; but as I have been broken only to single harness, I am not quite such a fool. Don't you know that, if adulteration is knocked in the head, and laid out for ever, it will double the price of extracted honey? And then, presto! up goes comb honey 8 or 10 cts. per pound. Won't pay you, eh? Only a dollar a year! Count even 5 cts. per pound, each year, clear loss on your whole crop, and then say it "won't pay" you. Why, it will pay a man who has only two hives and produces but 100 pounds of honey. A. B., here is my two dollars and fifty cents.

There is not a single article of food—corn-fodder excepted—that is not adulterated—many of them with poisonous ingredients—that it is at all possible to adulterate. You may not feel that it will hurt you; you have been used to it for years; you are old and tough, and a whole plug of "Battle Axe Tobacco" would hardly kill you; but what about the little prattler that is now climbing on your knee, and lisping the name of "papa"? What effect will all these poisons have on her? Are her perfect health and security not worth a dollar a year? or do you wish to wreck that perfect model of childish beauty, just fresh from the hand of God? That is just what you are doing.

Pure food means perfect health, long life, and happiness, for there can be very little happiness without health. Adulterated and poisonous food points its bony finger to the pall, the coffin, and the grave. And you won't give a dollar a year? No! but when that little angel lies beneath the daisies—when she sleeps the sleep that knows no waking in this world, the memory of that dollar will burn the bottom out of your soul, and, like Job of old, you will mourn and lament the day you were ever born.

Dr. Mason, here is my two dollars and fifty cents.

If you can't spare a dollar a year to utterly destroy adulteration, pile up your hives and burn them. They are not worth having, or you are utterly unworthy to possess them; and you call yourself a bee-keeper! You stand there and let a highway robber pull dollars out of your pockets, and can't afford a cent to buy a brick to knock him in the head. "Oh reason! thou hast fled to brutish beasts, and man alone is mad."

Dr. Mason, here is my two dollars and fifty cents.

* * *

BEES EVAPORATED—A NEW MALADY.

A Reasonable Explanation of the Cause.

BY E. WHITCOMB.

On page 479 Mr. R. C. Aikin cites what at first might appear to be a new malady among bees. Several instances have occurred within my own State. This can not be attributed to paralysis or the high winds that, during the spring, sweep over most of the plains region east of the Rockies. The honey-flow coming from the fruit-blossoms largely induces brood-rearing. The season is so far advanced that there is no longer any condensation within the hive, and, in order to rear brood, large quantities of water are necessary.

In a great portion of Colorado the streams flow directly from the snow and ice, not many miles in the mountains. The bees go forth in quest of water, go to the streams, fill themselves with cold water, are chilled, and die. The necessity for water is constantly increasing within the hive; others go forth, and share the same fate, until the whole colony has disappeared.

A paper read by us at the Lincoln convention last year effectually covers this matter; and the complaint made by Mr. Aikin is almost identical with that occurring a few years ago in an apiary near Omaha, and which was effectually cured by water within the apiary, where the water can be tempered, as best suited to the wants of the bee, by the gentle rays of the sun.

In the case near Omaha not a dead bee could be found in the apiary; but we did find them in large quantities dead around the hydrants in the immediate neighborhood. We doubt not that bee-keepers attach too little importance to what might seem to be a very small item—watering their bees within the apiary, of furnishing water of standard purity, and of a temperature best suited to the wants of the colony.

A careful study of the hive during the spring and middle brooding season has more than convinced us of the importance of watering in the apiary.

Friend, Neb., July 15.

* * *

THE TWO UNIONS.

Reasons Why the U. S. B. K. U. Should be Supported; a Reply to Prof. Cook.

BY DR. A. B. MASON.

Mr. Editor:—Will you please tell me what's the matter with our old friend Prof. Cook? It's awful hot here to-day, and I sit by an upstairs window and look out upon our apiary (it belongs to the whole family, so I say *our;* if I didn't I don't know how soon my better half would be after me with a broom), where the busy bees seem to think this is ideal honey weather, for they are busily engaged in bringing in the nectar from the acres of white clover, and acres more of sweet clover that is just coming into bloom.

It being too hot for active work I've been looking over late numbers of bee-journals, and I feel like asking the above question; for, within a few months, less or more, I've been noticing the peculiar "antics" indulged in by some of our well-known bee-keepers who have taken Greeley's advice and gone west to grow up with the country. But something seems to be wrong. Either the country has got its growth or else the climate doesn't agree with them, or something else is the matter.

Our good friend Hambaugh seems to be all right; but just look at the Rambler. He's been drawing on his imagination for quite a while to unravel the "Mystery of Crystal Mountain," and he hasn't got it unraveled yet, and he doesn't seem likely to for some time yet; but he's got plenty of imagination left. Will you kindly keep watch of him a little, and see that he doesn't get "luny," for there's no telling where he'll finally land if he persists in keeping in the company of such a character as Alfaretta and others of his pet friends.

I might name more of our friends who show signs of having imbibed something that has changed them from what they were when living farther east.

And our old stand-by, Prof. Cook, shows signs of having acquired a disposition to disregard the rights of others, as is shown, to me, when he says on page 449 of GLEANINGS for June 15, in speaking of Mr. Newman's construing the meaning of the vote of the National Union in January last, "If so, I am not sure but, on the plea of self-preservation, we should disregard such vote." Now, please, don't let Prof. Cook get so careless and lax in his ideas of what is right as to "disregard" the wishes of those who have paid their money into the treasury of the National Union, and who also chose him as one of the Advisory Board to carry out their wishes, and not to disregard them.

Like you, I can not agree with Prof. Cook when he says there is not room enough for two organizations. There is not only as much room now as ever for two organizations, but more. The old North American was in the field when the National Union was organized, and still there was room for it, and well have the Advisory Board and General Manager occupied the field, and protected our interests. The National Union took the field because the North American didn't occupy it all, or, rather, because a line of work needed doing that was not being done by the North American. The North American and National Union were not doing all that needed to be done, so another attempt was made to enlarge the scope of both by providing that the National Union should look after honey-adulterators and dishonest honey commission men; but a large majority of its members said *no*, and, true to his old-time faithfulness to the interests of the National Union, General Manager Newman says that voice must be heard and *obeyed;* but Prof. Cook isn't "sure" but such a voice should be "disregarded." As the result of that vote, the United States Bee-keepers' Union came into existence for the purpose of looking after interests that are more vital to bee-keepers than was that of being allowed to keep bees in cities and villages, etc. The United States Bee-keepers' Union proposes to look after the interests of its members in the same way as did the National Union, and, in addition, try to make it warm for the adulterators, and for such commission-men as attempt to defraud its members.

I am sure there is room for both the National Bee-keepers' Union and the United States Bee-keepers' Union; and I am just as sure that there is no *need* for both of them existing, and, as Prof. Cook says, "the old Union has got to fight living issues, or die." Why not let it die? It has done its work, and done it most faithfully and well; and right here I want to commend most truly and heartily the faithful and disinterested work of General Manager Newman, and to say that I believe him to have been and still to be most truthful and honest in all he has done; but, with many others, I believe he has made a great mistake in the course he has pursued in regard to the effort recently made to take a step forward.

But a new organization has come into existence which proposes to fight, and is now "fighting living issues," and for a "kid" it seems to be doing fairly good work.

Prof. Cook says, "I fully believe that one or the other of the present organizations will die. The division is expensive; has no excuse, and the fruits of one strong vigorous organization will be abundantly greater than of two struggling feeble ones. It will be a case of survival of the fittest." I fully believe Prof. Cook is right except in his second assertion; so, why try to bolster up the old when a vigorous, healthy "youngster" is in the field to win. We care tenderly for the old and decrepit, but we nurse and watch over and help and guide the young. As secretary I have quite a respectable bank account for the U. S. B. K. U., and I doubt not General Manager Secor has a like commodity to its credit.

As regards the second statement, "The division is expensive," I will say that I have kept a little memorandum of how many and who that have sent their dollar for membership in the U. S. B. K. U. belong to the N. B. K. U.; and, having just this moment received a list of the names of those having sent their dollar to General Manager Secor, I find that about one in fifteen belongs to the old Union. So it isn't a very expensive affair after all. The old Union has the "wherewith" with which to cheer and gladden its declining years, and it seems to me that none of the members of the new Union will wish it any thing but a peaceful old age.

Many who send their dollar to the new Union were formerly members of the old, but have dropped out because it was not keeping up with the times, and are glad to aid the new Union in its important work.

Of course, but comparatively few bee-keepers will join any organization that aims to work for their benefit. They may think, and even say, that "others will do the work, and adulteration will be done away with, and I get the benefit just the same as though I paid in my money." Every bee-keeper who sells honey, every dealer in honey, and every one who buys honey to use in manufacturing, or to consume it as a delicious, healthful, and toothsome sweet, is interested in the success of the U. S. B. K. U. and its work, and *thousands* of them *ought* to send their dollar to General Manager Secor instanter, and have a hand in looking after their personal interest.

Before the meeting of the N. A. B. K. A. at Lincoln last October, through personal correspondence I knew where Prof. Cook stood in regard to the proposed plan of union, and he voted against it because he "believed quite a number of the members did oppose it as unwise," and I presume a large majority of those voting against the plan did so for the same reason he did; but it always seems to me that the way to make matters move in the right direction is to look into them and decide on what is the *right* thing to do, and then do it, regardless of what others think.

Just here it occurs to me that it is a good thing to keep both Unions in a lively growing condition. I have the impression that the National Union pays but half the expense of defending a member who gets into trouble with his neighbors. If this is true, and the U. S. B. K. U. should follow the same plan, it will be a splendid thing to belong to both. A part of our apiary is located on a small city lot within a few feet of the homes of neighbors on all sides, and the rest is on a vacant lot just across an alley from the others, and families with children live on all sides; and men, women, and children get stung, but I keep the swelling down with an occasional glass or cupful of honey administered internally, at intervals, before the stinging is done.

Now, I'm a member of both Unions; and if trouble comes I expect General Managers Secor and Newman to take matters in hand and pay all the bills. Room for only one organization? Whew! Perish the thought! and all this for but a little over a dollar a year! You see the old Union has had so much honey on hand that, for several years, the Advisory Board, or, rather, the General Manager, has very kindly looked after our interests, and told us it should not cost us a cent. Don't try to kill either, Prof. Cook. Long may they both live and prosper, if such is to be the result.

Many are the good wishes that come to the new Union. Why, even its enemies are beginning to wish it well — even the editor of one of our bee-journals, who has admitted to its pages most uncomplimentary and scathing articles in regard to the new Union and some of those engaged in forwarding its interests, your humble servant included. A letter received a few days ago in regard to the coming Buffalo convention closes with this sentence: "Wishing the new Union much success, and members a good and profitable meeting, I am, etc." That shows the right spirit.

It seems to me to be hardly necessary to suggest, as Prof. Cook has done, that the members of the old Union write "to Manager Newman . . . to grapple with the question of adulteration in California." We have an organization, one of whose objects is to "grapple" with that very evil; and if Prof. Cook and others will suggest such a course to Manager Secor I've no doubt he'll look after the matter, and so not divert the money now in the treasury of the National Union from the purpose for which it was paid in, and no vote will need to be taken.

Your comments on Prof. Cook's article are very good indeed; and when you say that A. I. Root, one of the directors (Advisory Board) would be in favor of having the old Bee-keepers' Union "take up the line of work suggested" by Prof. C., you're but telling where he has stood all along; but it seems to me he ought to change that standing now. The old Union has overwhelmingly said that it did not want to spend its money in that kind of work, and I don't believe it's right and honest for the Advisory Board to disregard its wishes.

There is room for both societies. Let each attend to its special line of work, and all will be well.

I voted to have the old Union with its old and experienced staff of officers do just what the new has been organized for; but the majority said "no," and I hope the Advisory Board will be as conscientious in the matter as is General Manager Newman, and heed the Union's voice. Put me down "no" as regards the professor's plan. It would be much more difficult now to unite the two Unions, with their two sets of officers, than it would have been to unite the National Union and the North American.

I am glad Prof. Cook believes in doing the work the United States Bee-keepers' Union is doing and intends to do; and if he will turn his energies and money to building up the new Union, instead of trying to divert the course of the old into new channels, he can do much toward accomplishing what the old was not intended to undertake.

I know this article is getting to be rather lengthy; but I've tried to be brief, and I have much more I'd like to say; but I'll mention only one more matter. In the *American Bee Journal* for July 1st, Prof. Cook says he "was opposed to changing an organization . . . unless the members were pretty unanimous in the desire for such change;" and now in the last issue of GLEANINGS he is not sure but the Board should disregard such a vote. Where is Prof. C. at? Don't "disregard" the wishes of the old Union's members, professor, and we'll feel as kindly toward you as we always have.

Station B, Toledo, O., July 5, 1897.

[A. I. R. has stood right along just where your humble servant has stood. It was I who suggested to him, a member of the Advisory Board, the propriety of favoring the scheme proposed by Prof. Cook. I thought it would do no harm, and *might* in a measure help to soothe the soreness of those who can see no need of the new Union. Then, again, it seemed to me that we should place no obstacles in the way of the old Union's taking up the fight against adulteration, providing it should see fit to do so. There is a very big field along this line for both Unions, and they will not step on each other's toes even if they do fight the same enemy. However, whatever energies I have (and I am sure A. I. R. feels the same way) should be devoted toward helping the youngster that is now making such a sprightly growth. In this connection it is really painful to see how bitter Mr. Newman feels toward some of his old-time friends because they venture to offer honest criticisms on certain policies that he has seen fit to carry out. He has construed these criticisms as reflections upon his integrity and honor. No such idea, I am sure, entered the head of Mr. York or Dr. Mason, or of anybody else.—ED.]

NOTES BY THE WAY.

BY J. T. CALVERT.

My first day's journey brought me to Indianapolis. All along the way I was most forcibly impressed with the abundance of white-clover bloom. Through all the pasture lots it spread like a white carpet. The grazing cattle and horses seemed to leave the blossoms, and eat the leaves and other grasses. After passing over one or two States, and seeing the very abundant white-clover bloom, I no longer wondered that all the dealers and manufacturers of bee-keepers' supplies were crowded to their utmost, and somewhat behind on orders. It has been years since white clover has been so abundant and so general.

At the depot to meet me was our genial friend Walter S. Pouder, of Indianapolis, with whom I spent a very pleasant half-day. He is very conveniently located at 162 Massachusetts Ave., the store reaching back to New Jersey St. Mr. Pouder has been developing the trade in honey and beeswax in Indianapolis till he has built up a very nice trade. He sells all the beeswax he receives, right at home. Quite a little for the drug trade is put up in 1-ounce cakes, 40 cakes to the box, and sold at $1.00 a box. Honey is sold largely in square jars; and if it becomes candied before the retailer sells it, it is exchanged for that which is liquid. With the abundant crop of honey that we are sure to harvest this season, there is all the more need of developing the home market. By fair and liberal dealing, and being careful to sell only choice well-ripened honey of uniform quality, many have built up a demand in their own neighborhood, which continues from year to year, and increases with the years. What many have done many more can do.

As Mr. Pouder has but one hive of bees he has to buy his supply of honey from bee-keepers who have a surplus. Much of it he takes in exchange for supplies, for he is also the principal supply-dealer of Indiana, and is prepared to supply the wants of bee-keepers throughout his State.

As I journeyed westward across the States of Ohio, Indiana, Illinois, Missouri, Kansas, and Colorado I noticed the crops more and more advanced. The wheat which was still green in Northern Ohio was golden in Indiana, and being harvested in Illinois. In Kansas the fields were already stripped; and, such extensive fields! We have been hearing for the past few years of poverty-stricken Kansas. If the most of the State compares with what we passed through from Kansas City west over the Santa Fe R. R., they should have no reason to complain, especially if wheat continues to bring the good price it has during the past year. It is no doubt having a reaction from the feverish booms of past years, but is bound to have a steady permanent growth in the years to come.

The plains of Western Kansas and Eastern Colorado are for the most part a barren waste, with very scanty vegetation. As we near the Rockies, where water is available for irrigation, there is a marked change. Alfalfa is largely grown, and, as a consequence, considerable honey is harvested. As I visit this region on the return trip I will refer to it again later on in these papers.

San Francisco, Cal., July 10.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

BEES DESTROYED BY WORMS.

Question.—Going out among my bees the other morning I saw two worms at the front of one hive and three at another. I told a neighbor of this and he said I would have to look out or the worms would destroy my bees, as he lost several colonies in that way some years ago. Are there any worms which will destroy bees? If so, what are they?

Answer.—A good colony of bees is never destroyed by any worms which we have in these parts, and I doubt if there are in any part of the world. Such expressions as your neighbor gave voice to show the ignorance of very many regarding the enemies of the honey-bee and their lack of having studied upon the subject. However, as such statements tend to make the beginner fearful of loss of bees from the ravages of the larvæ of the wax-moth, it may not be amiss to treat the subject a little now and then in our bee-papers, explaining the workings of this larva and the only fear we need have of it. In the first place, permit me to say that no one will make the assertion that they have lost bees from moth-worms unless that one is either ignorant or careless, or both. The carelessness of such people is shown in that they do not attend to their business as they should, so they do not discover that their bees are gone till the combs are destroyed by worms; and they show their ignorance, because, if well posted in all that is going on inside the hive, at all times, they would know better. I do not propose to tell here what a wax-moth miller is, how the miller or the larvæ look, how the miller succeeds in getting her eggs in the hive, etc., for this can be found in any of the books on bees and bee-keeping. If any have not one of these books, my advice would be to get one at once, for you can not well understand much that the columns of GLEANINGS contain unless you know the first principles of bee-keeping. One who can not afford a book can not well afford to keep bees, as the loss of an ignorant person with two colonies during one year is much more than the price of a book; and yet thousands attempt to keep bees without a bee-book or a bee-paper. One thing is certain: In most localities where bees can live, if the combs are not occupied with bees, and have not been exposed to a degree of cold as low as 15 degrees above zero, when warm weather comes in the spring to stay we always find the larvæ of the wax-moth upon the combs the most abundant on those which have pollen in them, or have had many generations of brood reared in them. When once under headway it takes but a short time to reduce the combs in a whole hive to a mass of webs. Now, the worms can not come into full possession of these combs so long as there are bees upon them, although we find here or there a worm which may have eluded the vigilance of the bees by getting in the septum of the comb, under the brood, or by being under the capping, over the heads of the immature bees. But even here they are secure for no certain length of time; for before they reach maturity they are ferreted out and cast from the hive like those our correspondent saw at the entrance of his hive. The Italian bees keep these worms out much better than either the hybrids or blacks—a handful fully protecting a whole hive of combs, the worms being kept in submission so long as a few score remain. If from any cause a colony becomes hopelessly queenless, the bees all die of old age in from fifty to sixty days from the time the last bee hatches, if in summer; and as soon as the bees are gone there is no restraint on the worms, thus giving them full sway, and in a short time the combs are ruined.

Did the worms destroy the colony? Certainly not; the colony was destroyed by the loss of the queen, spring dwindling, or whatever the cause was, and the moths came in as an effect. Thus we see to talk of worms destroying colonies of bees is fallacious. If we are not extremely careless we shall see from outside observation that something is wrong with any colony, long before the moths can take possession of the combs, even if we do no general manipulation of hives; and as soon as we see that something is wrong with any colony it is our business, as apiarists, to open the hive and find out what that wrong is, in time to save the colony. But it frequently happens that we lose a part of our bees during the winter or spring, and wish to preserve the combs till the remainder of our bees increase to occupy them, for such combs are of decided worth, even in these days of comb foundation. To keep them from being spoiled, if not entirely destroyed, by the moth-worms, requires close watching, and all should be looked over as often as once a week when warm weather comes. As soon as many worms are seen, hang the combs in a small close room, so the fumes of burning sulphur can penetrate all parts of them, and burn one pound of sulphur to every 100 cubic feet contained in the room. To burn it, get an iron kettle, put some ashes in the bottom, put in a shovel of live coals from the kitchen fire, and pour on the sulphur. Shut the door and leave for two or three days, when every thing that inhabited them will be dead, unless, perchance, some of the eggs may remain unhatched. If kept from the miller it is rarely the case that they will need looking after again; still, I have sometimes had to sulphur again in two or three weeks.

There is one thing that all can do to prevent the moth nuisance; and that is, keep every bit of comb not covered by the bees in this sulphur-room or else in the wax-extractor. To allow combs to lie around till they become a breeding-nursery for thousands of these pests is something that many of our apiarists who are practical in other ways are guilty of. In the apiary of a man who raises honey by the ton I once saw combs by the score literally filled with moth-webs and cocoons, moths being raised to go out and curse the bee-keeping world all about. Let us not be guilty of these things.

Heads of Grain FROM DIFFERENT FIELDS

HONEY SEASON NOT SATISFACTORY.

The honey season has not been satisfactory with me. Clover yielded only moderately—enough to give our bees a good start in the sections. Now basswood is out in bloom; but our bees are killing off their drones, and the honey season seems at an end. I can this year record what in all my experience I have never been able to before—not one swarm in June. Even the 4th of July passed by without one swarm coming out.

Other parties, within three or four miles of me, and others at a greather distance, I hear speak of a very fair yield, but only few swarms. A good deal of buckwheat is sown here this year as usual, and the rains are bringing it on wonderfully. This may help us out; at any rate, we are making great calculations on it.

Of course, we intend to go to Buffalo, and we hope to see a number of the noted bee-keepers of the land there. Especially do we hope to see as many of the inhabitants of Rootville as possible.

FRIEDMANN GREINER.

Naples, N. Y., July 19, 1897.

DRAWN COMB VS. FULL SHEETS OF FOUNDATION.

I am now taking off the Hilton supers filled with white-clover honey. I am using them on the new Dovetailed hives. It is just fun to handle them, for they come off as clean as they went on—no burr-combs on sections nor on tops of brood-frames. I don't see how Mr. Danzenbaker can do any better than this with his complicated arrangement and paraffine paper to boot. I say as I have said regarding the new self-spacing Hoffman frames, "If this is not the *best* arrangement for comb honey, it is certainly good enough." For extracting I should want four dovetailed bodies full of comb for each working colony, allowing the queen the exclusive use of the two lower ones.

Drawn combs in sections have fallen a notch in my estimation this season. I had quite a lot of them, and put them on first; but I am compelled to confess that they were not filled and sealed as promptly, nor does the finished section look nearly as well as those filled from full starters of extra-thin foundation. Now, why is this? Well, in a good steady honey-flow, such as we have had, the bees need nothing better than foundation in order to fill and seal their sections promptly. Give them combs with cells of any depth, and they will fill them up with their unripe honey, and have to wait so long before it is ripe enough to seal that those furnished with starters are finished first and look best. I know that drawn combs are useful sometimes, and I have used a great many of them; but given such a season as this, with such a honey-flow, I do not want them at all. As far as coaxing bees up into the sections is concerned, I never had to do it yet. If you have a populous colony and a good honey-flow at hand, they will take immediate possession of the super without the aid of bait-combs.

Without those two factors there is little use of trying to work for comb honey. My experience has led me to the conclusion that drawn combs are not so all-important as some would make out. H. LATHROP.

Browntown, Wis., July 12.

[The drawn comb referred to must not be confounded with *drawn foundation*, which is another thing. That to which Mr. L. refers was comb, as I take it, drawn out from foundation of the previous season. He does not say whether it was leveled down *a la* Taylor or not. As between drawn comb and drawn foundation, there would probably be little difference. If the latter were made 15 ft. to the lb., as we have made it, with walls only one-eighth inch deep, the comb honey would be of a finer quality so far as the comb is concerned than that built from foundation in full sheets running from 12 to 13 feet to the lb.—ED.]

REPORTS ENCOURAGING

DISH RIGHT SIDE UP.

I find my sections are all nearly filled now, and basswood, the source from which I usually get my entire honey crop, will be blooming in four or five days, and I shall not be in readiness for it; therefore I order by express. Basswoods will be fuller of bloom than I ever saw them, and the prospects for a good honey-flow are very flattering indeed. I want to get my dish right side up. T. K. MASSIE.

Tophet, W. Va., June 30.

BEES FILLING SUPERS AS IF BY MAGIC.

The bees are almost getting ahead of me this time. I got 3000 sections and 20 lbs. of super foundation of you this spring, and had 2000 sections on hand from last season, of which 1000 were filled with drawn comb from last season, and I am just about caught up now. I never saw such an abundance of white clover as we have this year. The bees are filling supers as if by magic. About half of my bees have swarmed up to date.

Trail, O., June 24. AMOS MILLER.

BEE KEEPER
FRED ANDERSON,
OR THE MYSTERY OF CRYSTAL MOUNTAIN.
BY JOHN H. MARTIN

FRED was greatly surprised, upon going beyond the clump of sycamores, to find the doctor with his horse and Sam's saddled and bridled as if ready for a journey.

"Why, doctor," exclaimed Fred, as he hastened forward, "what does this mean? Are we to break camp now and get to Prof. Buell's in the early morning?"

"Oh! no, Fred. Sam and I thought we would take a little journey on our own account; but first I wish to talk with you;" and the doctor leaned against a sycamore, folding his arms across his breast as though to hold together all of his powers. "I have been thinking much of late of my position and condition in the world's affairs. I feel that, at my age, and with my habits of life, it is impossible for me to conform to the usages of the ordinary so-called civilized community; and, furthermore, I have searched for years for a daughter, and fondly hoped that, when found, I should also find a daughter's love; but, Fred, having found that daughter, I do not find a daughter's love; and I never—no, never—shall. She loves her supposed parents, and, in fact, they are parents to her in all except the matter of birth. To step in now and reveal myself as her father would be a cruel blow to her happiness. Do you see," said the doctor, with greater earnestness, "how her eyes brighten and her face glows at the thought of meeting her parents? how she thinks our pace slow? and, had she wings, how she would fly to the home that shelters those she loves? And I, should she know of my relation to her, at the best I should merely have respect—an uncle's or a cousin's love. No, Fred," said the doctor, in a decided tone, "I can endure no second-rate love. The fates have decreed that this should be so, and now I should feel especial dishonor to stand between Alfaretta and those whom she holds dear. I can cherish the memory of having found her, and of being instrumental in restoring her to mental health. And now, Fred, you must know that my plan is to go far from this place, where I can surround myself again with animal life, and live in quietness. Convey to Mr. and Mrs. Buell what I have told you, but never reveal to Alfaretta the relationship that exists between us. Let me remain to her as Uncle Ralph. And now, Fred Anderson, farewell."

While the doctor was talking, Fred's emotions were first surprise, then grief; and when the doctor mounted his horse he could scarcely control himself. His words of appeal fell upon deaf ears; and finally, as the doctor moved off, Fred's words of farewell were broken with sobs of genuine grief, for he had learned to love this unselfish man. Sam Johnson silently gave a parting hand-shake, and Fred was left alone.

Slowly returning to the camp-fire he stirred the dying embers to a flame, and sat for a long time musing upon the strange events through which he had passed during the past two years. Sleep did not come to him any more that night. The coyote set up his indescribable yelp not far away, and an owl screeched and screeched in the sycamore-tree, but Fred heard it not; he was living in another realm. He arose, finally, and said to himself, as he looked toward the little tent, "If I do not soon win this woman's love I too will follow Dr. Hayden."

The little tent soon showed signs of life, and at an early hour Alfaretta emerged from it. She had been informed that she was but half a day's journey from her home, and her excitement increased, and she was impatient to continue the journey.

Her first comment, upon emerging from the tent, was, "Why, Fred Anderson, how solemn you appear. You look as though you had lost your best friend." The next moment she said, as she surveyed the camp, "Where is Dr. Hayden?"

"If the expression of my face is so sad that even your presence can not enliven it," said Fred, "then I will say that we have both lost an excellent friend;" and he related the episode of the night.

Alfaretta's surprise was great, and her chagrin greater; "for," said she, "I had anticipated so many pleasant things for him; how full of joy, and how grateful, my parents would have been! and I would always have loved him as my dear Uncle Ralph. But, what a mysterious man! and, Fred, I dreamed last night that he looked into my tent and gazed a long time upon my face, and then floated away up like a cloud."

"I reckon yer dream was all true, 'cept the cloud," said Gimp; "fur I seed the doctor a looking inter the tent."

There was not much relish for food that morning, except by Gimp. Camp was broken, the donkeys packed; and as they proceeded on their way Gimp finished his breakfast from remnants he had tucked into his pockets. Trouble was not allowed to interfere with his gastronomic affairs.

Alfaretta—how radiantly beautiful she appeared! The flush of early morning exercise upon her cheeks, her eyes sparkling with joyous anticipation, erect and alert, to Fred's eyes she was the very embodiment of health and loveliness; and he, with many conflicting emotions passing through his mind, rode for many miles with but little conversation between them.

This silence might have continued through the remaining portion of the journey; but after crossing the Sacramento River the road led diagonally up a steep bluff. Alfaretta's pony was upon the outer edge of the grade, and at one point the embankment was supported far below by log-work. The earthquake had evidently loosened the logs, and the tread of the pony caused the embankment to slide down a few feet. It was not much of an accident—rather more startling than injurious. The pony made a desperate struggle to regain the roadway. Fred, whose horse was close in on the grade, and not caught in the slide, leaped from his horse and was by Alfaretta's side instantly, and aided the pony to gain the roadway.

"My!" said Alfaretta, trembling; "how it frightened me! but I didn't shriek, did I, Fred?"

"Oh, no!" said Fred; "you are too brave a girl for that."

A little further along, after regaining her composure, she said: "How good of you, Mr. Anderson, to again guide me out of peril!"

Fred felt a little chill at the words "Mr. Anderson;" but having a resolve in mind he nerved himself for the effort of his life, and said, in a low, earnest tone, "Alfaretta, would that I could be your guide through all of your life. You are going to your home with joy; let me have the great pleasure of going with you, hand in hand, for weal or for woe. If I have been your guide in dangerous places, you now by one little act can requite it a thousand fold. I close my eyes and reach out my hand, tempting fate."

Fred's horse was near Alfaretta's, and for a moment he felt suspended between heaven and earth; every beat of the heart seemed an age. Would she clasp his hand? The thought of her refusal caused him in imagination to sink down to unutterable depths of despair. But, oh the rapture! Could he believe it? her hand sought his, and now the thrill of joy lifted him as far above the earth as, a moment before, he was below it. Clasping Alfaretta's hand more closely, he opening his eyes, and looking upward, said, "Oh sunshine! how glorious! how grand the great dome of heaven! how beautiful the earth, radiant with floral gems! how sweetly sing the birds! and the very winds breathe music through the trees; but far above all these the love of woman rules and beautifies the world. Without that love it would be a barren waste indeed;" and he raised the hand to his lips and kissed it.

"Well, I declare, Fred," said Alfaretta, "you are getting decidedly sentimental. I really believe we are on earth yet, though."

"That may be," replied Fred, "but it has suddenly become a new earth to me."

Their conversation was here interrupted by the arrival of Gimp, whose horse came up on a lope. He had been interviewing the operator of the ferryboat about the fishing; and before he was near them he shouted, "They say the fishing is purty good along this yer river now."

"That may be," said Fred, with a smile; and, turning to Alfaretta, he said, "Then you remember nothing about pulling me from the river with the fish-pole, and calling me Mr. Pickerel?"

"Nothing whatever," replied Alfaretta; "it is all a blank to me, as well as any remembrance of the lovely home you say we have on this river."

"Yes, Alfaretta, it is a lovely home; and when we reach yonder bend you shall see it. Over yonder," and Fred pointed across the river, "is the Ghering ranch; and that white-appearing rock out in the tules is all that remains of the bluff upon which I had my neat apiary and beautiful honey. Why, as I look across I feel almost like shouting for Matt Hogan."

"And to think what ill luck you have had with bees—this apiary washed away, and those hundreds of valuable swarms overwhelmed in the valley! Fred, I think you should give up all idea of keeping bees."

"Oh, no!" replied Fred; "all of these discouragements have given me training for better work in the future. I believe I can now fit up the most scientific practical apiary in the country; at any rate, I am anxious to try it. But here we are at the river bend. Now for your first glimpse of home through sane eyes; but what is the matter, Alfaretta? You look pale; please be a brave girl now, and control yourself."

"I will try, Fred; but you scarcely realize that it is over five years since I saw my people to sanely remember them, and all of these years of anxiety and sorrow must have wrought changes. I shall not see the same parents I saw five years ago; and are they at home? are they alive, Fred? are they living here? Oh the conflict of these thoughts!"

"Courage, dear; we shall soon know all; see, there is smoke from the chimney. Somebody is waiting for you."

J. U., Neb.—Perhaps you have not seen a sample of the drawn foundation. We have made some that runs 15 feet to the pound, with cells ⅛ inch deep. When the cells are ¼ inch deep it runs about 11 feet to the pound. Even this is nearly as light as thin foundation, but heavier than extra thin. But our thinnest drawn foundation is lighter than any foundation that has ever been made having any wall. The drawn foundation running 15 feet to the pound is very much lighter than the extra-thin foundation, which is only 13 feet to the pound. Perhaps you have been relying on statements made by those who oppose the new drawn foundation. If you have, we would suggest that you send and get some samples from our latest dies. If the new drawn foundation should come into general use, if we made it as light as 15 feet to the pound it would take much less wax than foundation does at present.

THE officers of the United States Bee-keepers' Union have gotten out a very neat and elaborate program for the Buffalo convention, to take place Aug. 24–26. This program contains, besides, nine special songs, the music and words of which were gotten up by bee-keepers. These programs are to be sent free to all members of the Union; to all others a nominal price of 5 cents will be charged. Address the secretary, Dr. A. B. Mason, Station B, Toledo. The music is simply delightful. Send for a program, and try the music in your home.

FREE HONEY-LEAFLETS.

IN order to help bee-keepers sell their big crop of honey we have decided to furnish, during the month of August, honey-leaflets free, in quantities not to exceed 500 to any one person asking for them. But to be eligible to this offer the person must be a subscriber or have ordered goods of us at some time during the season. He must also pay express or postage. If the leaflets go with other goods, there will be no charge to pay. I am so firmly convinced that they will do good work where distributed among grocers and consumers that we are constrained to make this offer. Let the orders come in—the more the merrier. Postage on 500 leaflets will be 50c; on 100, 15c.

THE ADVANTAGE OF BIG COLONIES.

I HAVE said a good deal regarding the advantage of large colonies being non-swarmers, and the kind that produce honey. Experience this season, as well as last, has pounded the fact into my head more firmly than ever before. The Dadants have long been exponents of big hives and big colonies; and while I believe they are exactly right in urging the importance of having powerful stocks of *bees*, I am not yet prepared to believe that a large hive all in one brood-nest is essential. During the past season we have secured largely the same result as do the Dadants, with our two-story eight-framers; namely, no swarms and 100 lbs. of extracted honey on the average, per colony, and 50 lbs. of comb honey. The single-story eight-framers swarmed, and in some cases gave us 25 lbs. Hard facts and figures like these are worth a bushel of theories. In addition to the two-story colonies we have a few three-story and one four-story; the last named holds two *big* swarms. If they had been at the out-yard instead of at the home yard, that is greatly overstocked, we should have secured some results.

THE DADANTS ON BEES HANGING OUT DURING THE HONEY-FLOW.

WE are at present enjoying a visit at the Home of the Honey-bees from Mr. Louis Dadant, son of C. P. Dadant. That is to say, he is a son of the "son" of Charles Dadant & Son. He reports that they have had an excellent foundation trade this season, as well as a good honey-flow. One of the first questions I asked young Dadant was whether they had been having any swarms.

"Not a swarm this season," was the reply, although they had 80 strong colonies at the home yard.

"Do your bees ever hang out?"

"Yes, sometimes, if we do not keep ahead of them and give them sufficient room. But when they cluster out in front we raise the hives off the bottoms, thus giving them ample ventilation. This starts the bees to work."

This is in line with what I said in our last issue in regard to bees hanging out. It will be remembered that the Dadants have few or no swarms, and this fact speaks volumes for the advantage of having large colonies. But I shall have something more to say on this question, in another column.

MORE FISHBONE IN NATURAL DRONE COMB THAN IN COMB BUILT FROM FOUNDATION.

WHEN the question of the new drawn foundation came up, some opposed its introduction, on the ground that it would make more fishbone in comb honey, and even went so far as to condemn the practice of using full sheets of foundation in place of narrow starters, as they averred that the former made too much "fishbone." I never had a question but that full sheets of foundation would result in a heavier midrib than ordinary natural built comb; but if our experiments and observations, as reported in our last issue, mean any thing, it would appear that there is actually *less* of the objectionable article in comb honey from the use of full sheets than where only narrow starters are used. *If* the bees would build *worker* comb in place of drone comb, after extending beyond the narrow starter, then the results might be different. It would look as if the talk, to the effect that the comb honey of our fathers (as a general rule drone comb) was better than the comb honey of the present day, were based more on theory than on experience or observation.

EXTENT OF THE CLOVER HONEY-FLOW; A BIG YEAR FOR SUPPLY-DEALERS.

MR. W. A. SELSER, the honey-man, of No. 10 Vine St., Philadelphia, called on us recently. He had been out west buying up honey; and he reports that the honey season, while fair in Minnesota, Iowa, and Wisconsin, was not as heavy as in other States in the North. Basswood had been to a great extent a failure, while clover did only fairly. Mr. M. G. Chase, of Whittlesey, said last week he had a sort of feeling that the honey season would not pan out as well over the country as we had at first expected. He urged that, *if* the crop was not to be a big one, the report that it would be would demoralize commission men so that they would not dare to make prices; and so if they quoted at all they would quote low. This, he thought, set the pace for the rest of us. There may be something in this.

On the other hand, if we can judge the honey season by the flood of orders that has come in, the flow has been the greatest in extent and duration that we have ever known. Here we are up to this date, July 24, running night and day, machinery and engines strained to their utmost, and we expect to run nights another week. Usually our rush of business is all over by the 1st of July. We began running night and day the last week in April, and during this time we have employed the largest number of hands we have ever had in our experience. As nearly as we can learn, our brother-manufacturers have also had a heavy run of business, all of which goes to show that the season of 1897 will go down into the records as being one of the best that bee-keepers have ever known. Prospects are exceedingly bright for another season.

OVERSTOCKING AT THE HOME OF THE HONEY-BEES.

We have 300 colonies and queen-rearing nuclei at the home yard, and 40 full stocks at the out-yard. It was evident from the very first, as I stated, that the bees away from home were doing altogether the better work. Only a few comb-honey supers were filled and capped over at the home yard, while at the out-yard every one of the colonies was in the supers for all they were worth. The out-bees would fill a super in about a quarter of the time the home bees did, providing they did any thing at all. Another fact is, that the home yard is at the present time just barely holding its own. Indeed, they are ready for fighting and robbing. The out-bees are still gathering honey and capping sections, at least they were on the 23d.

All these results would naturally be expected; but it goes to show that the number of 300 colonies and nuclei is overstocking our home yard with a vengeance. It is probable that the out-yard would take at least another 40 colonies, without very much detriment to those already there.

AN IDEAL LOCATION FOR BEES.

For myself, at least, I have decided that the ideal place for an apiary is in an orchard, where there are low-spreading trees. If the queens' wings are clipped, there will be comparatively little climbing after swarms. Some prefer shade-boards; but after having tried both, for the comfort of the apiarist and that of the bees I decidedly prefer the shade of low-spreading trees. Grapevines do tolerably well, but they do not protect the apiarist; and at this time of the year, when the shade is most needed, they are sending out shoots and branches that interfere with the handling of the hive; and gravevines do require an excessive amount of trimming just at the time bees need the most attention. The colonies at our out-yard are placed in groups of three on the north side of the low-spreading basswoods. It is a great comfort as well as a pleasure to work among these bees compared to what it is in the home yard with the grapevines. Vernon Burt has his apiary in an apple-orchard, and the grass is neatly kept down by sheep that are allowed to run among the hives at will. The lawn-mower does not begin to compare with them.

L. L. LANGSTROTH.

I am informed that as yet no tombstone has been placed to indicate the spot where the remains of our old friend and benefactor rest. Now, while I would not recommend extravagance in this matter I certainly do think the bee-keepers, not only of America, but of the whole world, would gladly give something to have a proper stone furnished. I am told that $50 has already been subscribed; but to my mind, all things considered, this is hardly sufficient. If those who have enjoyed and been profited by father Langstroth's writings should contribute only a *dime apiece*, it would be enough and *more* than enough; and I am sure bee-keepers would willingly do this. In fact, if I am correct most of them would feel it a privilege. The only difficulty is to get the matter started, and to let people know about it. I myself will gladly give $10.00; and if enough is not raised to pay for a fitting monument, I will do more. Send the money to us and we will see that it is properly credited; but send as much more than a dime as you can afford.

And it occurs to me just now that some of our able men, friends of our benefactor, should meet together and suggest a suitable inscription. I have not consulted any one in regard to the matter, but I should like to have Dr. Miller and Manager Secor, and anybody else whom they might choose, get something appropriate for the tombstone. The whole wide world knows more or less of Langstroth; and people who visit the cemetery at Dayton, Ohio, will look up the place and will read with interest the inscription. When I was down east it gave me a rare thrill to be shown the burying-place of Noah Webster, the father of our old "elementary spelling-book." I can not remember just how expensive a stone it was; but I was not only delighted to see it, but to tell the friends after I got home that I stood by the tomb of this, that, and the other great men whose memories we love and revere. Now, then, when you are writing us tell us what your mite toward the fund shall be; and if you can not all see the stone, and read the inscription, we will try to give you a good picture of it in Gleanings.—A. I. R.

GETTING BEES STARTED INTO SECTIONS; THE ADVANTAGE OF POWERFUL COLONIES.

We have had quite a number of inquiries as to how to get bees to go into sections. Some have said that their hives were full of honey, but the bees would refuse to go to work above. The main trouble in most cases is that the colonies are probably not strong enough. If they can only comfortably fill the brood-nest they may not go into the supers, even if honey is coming in freely. Hives should be fairly *boiling over* with bees. With this condition, and a fair honey-flow, there ought to be no trouble in getting work started in the supers. But it is always advisable to put in a partly finished section or sections from last season, or, better yet, from another colony in the same apiary, that is working in the sections. These we call "bait-combs," and every wise apiarist will put one or two of them in the center of his supers along with sections containing *full sheets* of foundation. The average bee-keeper can not afford to use narrow starters.

A great deal of stress has been laid on the importance of putting in bait-combs to start the bees up; but a greater stress should be laid on the importance of having big rousing colonies. The hives should be "shoost crammt cham full" of bees; then when supers are put on, the bees will go into them. When *once* here they won't loaf long if honey is coming.

SHEEP TO KEEP DOWN GRASS IN THE APIARY.

A few days ago Louis Dadant and I called at Vernon Burt's. He was away at the time, but we strolled into the yard nevertheless. Quite a flock of sheep were busily nibbling around among the hives. I had supposed that Mr. Burt allowed them access to his apiary only at night; but latterly, at least, it would seem that he lets them go among the hives day and night as much as they please. I saw some sheep nibbling grass close to an entrance. Did the bees make any fuss about it? Well, yes, but the creature did not seem to mind it. One old woolly chap I noticed was walking across the apiary at a little quicker pace, with his head quite low. By looking carefully I saw that a lot of bees were after him. He plunged his head into a clump of twigs, and wiggled his stump of a tail in a show of self-defense. He shortly drew his head out, and went to nibbling grass around the hives as though nothing had happened. another sheep seemed to be stung in the face, but paid very little attention to it. Just imagine a cow or a horse or a donkey, with bees after them, among a lot of hives! No cartoonist has or ever could fitly represent the "scene." Thick heavy wool protects so that, I believe, they are rarely stung; and even when they are, as I said, they pay no particular attention to it.

I don't believe there is any thing equal to our woolly friends to keep down grass and weeds in an apiary. It takes lots of time and hard work to do an equally good job with the lawn-mower. At our home yard there is an open roadway over which considerable basswood lumber is hauled, and more or less general teaming is done. Were it not for this fact I should be in favor of having a flock of sheep to keep the grass down in our apiary.

GLEANINGS PRINTED ON NEW TYPE AND ON A NEW PRESS; SOMETHING ABOUT THE PRINTING FACILITIES AT THE HOME OF THE HONEY-BEES.

Our readers will notice that this issue is printed on a new dress of type, the old having become so much worn as to make a change necessary. It is also printed on a brand-new Campbell Century four-roller book and job press that has a guaranteed capacity of 2200 impressions per hour, or a normal rate, including stops, of about 18,000 printed sheets in a day of 10 hours, each sheet having 16 pages of GLEANINGS matter on a side. This machine cost us $2500 in cold cash.

Our printing department has been so crowded during the past year that we had to have something better; as it was, the old press ran night and day from about the first of January to the middle of May last. We have realized for some time also that it has taken too long for us to run off an edition of GLEANINGS. With the old press it took from four to five days; but we expect with the new machine, as soon as our boys learn to feed it to its full capacity, to make the run in something like a day and a half, or possibly less.

Besides the printing of our journal we have from 150,000 to 200,000 catalogs to print, of our own, every season; for we believe heartily in the principle that we must let the world know that we have something to sell. Then there is our A B C book and several rural publications. Besides this there is some outside printing. The consequence is, we have found our capacity heretofore to be so limited that we found it necessary for us to buy the very best and fastest printing-press that could be found in the market; and after a good deal of investigation it proved to be the new Campbell Century—a press that is now almost working a revolution in printing-presses. I believe there is no one other *book* and *job* press of its class that can equal it in speed day after day without "playing out."

Good by, old press! good-by, old type! and welcome new type and new Century and progress! While GLEANINGS does not claim to be the *best* bee-journal in the world, it has a right to claim that it "keeps up with the procession," both in subject-matter and in letter-press work. Besides this we shall continue to bestow, as in the past, extraordinary care upon our proofs.

THE NEED OF STANDARD GRADING-RULES; A SHARP TRICK OF THE TRADE.

IT begins to look as if it were impossible to find a set of rules for grading that will suit even the experts in bee-keeping. Some even go so far as to think it better to have no rules, and let each one grade according to his own notion. The obvious disadvantage of this is that one lot of honey can not be compared with another. A's "Fancy" would be B's "No. 1;" and C's "Extra Fancy" might be D's "Fancy." We must somehow strive to arrive at uniformity. Without grading-rules a commission house can *sell* B's honey as "Fancy," and make him returns for the honey at No. 1 grading. By this way they can actually steal the difference between the price of No. 1 and Fancy. Yes, even with a standard set of grading-rules they could carry on this sort of stealing, but it is not nearly as easy to do so; for with standard rules each party would know what he is talking about; but without rules the bee-keeper is at the entire mercy of the commission house. I regret to say it, but I fear that the practice of selling at one grade and making returns to the bee-keeper at a lower grade is more common than it ought to be because it is so easily done and so difficult of detection. A good set of *standard* grading-rules would be a great bar to the practice.

GRADING-RULES FOR HONEY.

Up till within a few days preceding the 15th of July, not a single postal or letter had come to hand indorsing or criticising the grading-rules that were proposed by Walker, Miller, and others in the July 1st issue. Before Mr. Walker's article was received, and which is published in this number, I tried my hand at grading — that is, I tried to bring the matter down to a focus by bringing the thoughts of others into one system of grading. In the first place I took the Washington grading as a background, and then incorporated mainly the suggestions of Dr. Miller, in our July 1st number, who had previously considered those put forth by Messrs. Thompson, Walker, and others. Here are the rules that I "doctored :"

Fancy.—All sections to be well filled, combs straight, and firmly attached to all four sides, the comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next to the wood; the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled, but combs uneven or crooked; one-eighth part of comb surface soiled or unsealed, or the entire surface slightly soiled.

No. 1.—All sections well filled, but combs uneven or crooked ; one-eighth part of comb surface soiled or unsealed, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "fancy white," "No. 1 dark," etc.

The "Fancy" and "A No. 1" correspond exactly with Dr. Miller's "Fancy" and No. 1 on page 483, July 1st issue. I have changed the designation of the second grading, putting it "A No. 1." No. 1 is identically the same as A No. 1, you will notice, with the exception that no mention is made of the scraping of the sections. The greater part of honey that is put out is in sections not scraped ; and it follows that the greater part of all honey sold will be in sections soiled or unscraped, and should be designated as "No. 1." I know Dr. Miller believes that most honey put out is scraped ; but if he will go over the markets as I do, and buy honey as our firm has done, he will note that very little of it has been near the scraping-knife.

Mr. Walker and a number of others pointed out that more than two grades are necessary to include the bulk of marketable comb honey. It will be noted that I have already added one extra grade to take in the bulk of comb honey not scraped ; namely, No. 1. I now add two more—the No. 2 and No. 3 that Dr. Miller proposed some years ago, and which we reproduced on page 482, July 1st issue. Such honey should not be put on the market ; but as it is, nevertheless, it must be designated in some way or other.

I have carefully looked over Mr. Walker's revised grading-rules in this issue, and the only criticism I have to offer is that they are too wordy, and there are too many little conditions and points that one would have to bear in mind to grade by. The rules must be very simple to be operative. Really, I do not know which would be the better rules to abide by—those above given, those proposed by Mr. Walker in this issue, page 551, or some other.

The editor of the *Review* believes that the Washington rules — those we have been using right along during the two past years — were all right—good enough for anybody—that we mustn't expect to suit every one.

ERRATIC SWARMING FOR 1897; THE SPRAY-PUMP A NECESSITY.

Judging from the letters that have come in, and from our own experience, swarming this year seemed to be a little more erratic than usual. In our own vicinity, for instance, the bees have seemed determined to go off without first alighting; and it has been only by the most vigorous use of the spray-pump that we have been able to hold them. One swarm actually left us. It seems they flew high into the air, went over the factory buildings, clear out of the reach of spray-pumps and every thing else, and didn't even say, "By your leave." One other swarm I was just able to reach with the spray. They were fast making off when I wet down the wings of the leaders, changed their course, and finally, by vigorous dousing, induced them to alight. Heretofore we have been in no great hurry to take care of swarms when they came out, because we knew they would alight before going away.

I noted in Straws for July 1st, that Dr. Miller asks why we do not clip, and save all this nonsense. As we make quite a business of selling queens, we find that our customers do not all want their queens' wings clipped. When a man sends off a distance to get a queen he likes to show his beauty to his friends, and, of course, wants her to look perfect—not one-sided. We are obliged, therefore, to put up with the nonsense.

A CHANGE OF MIND.

The foregoing was prepared for our last issue, but it was crowded out at the last. I just want to say that I have changed my mind. The care of swarms devolves upon your humble servant, Sundays and at the noon hour. I may be mistaken, but it *seems* as if those pesky bees selected their times to swarm when I am on the watch. So far as I am concerned, I have about concluded that, in the future, our customers will have to take "one-sided" queens or go somewhere else. I have chased and squirted, climbed trees, and puffed and fumed, till I am tired. We have already begun the process of clipping our queens' wings; and if our customers do not like it—well, they can just go elsewhere.

Our tested and high-priced queens are, as a rule, in big colonies that can produce honey. I used to feel that a colony could spare its queen in the height of the honey-flow, and then there would be no danger of swarming; but, as I have shown in last issue, p. 531, a queenless colony sulks too much. I am wondering whether a queen-rearing apiary, a comb-honey apiary, and an extracted-honey apiary can be combined all together all at once. The echo in my own mind says, "Nit."

OUR HOMES.

Oh full of all subtilty and all mischief, thou child of the devil, thou enemy of all righteousness, wilt thou not cease to pervert the right ways of the Lord?—ACTS 13 : 10.

Our readers may remember that, during the year 1895, I at different times mentioned the electrical fraud or humbug called Oxydonor, in connection with my repeated warnings in regard to the humbug toy called Electropoise. The matter would probably have never been referred to again were it not for something I saw in the Patent Office *Official Gazette* for July 6, 1897. On page 185 we are told that, on the 15th of June, 1897, a patent was granted to Hercules Sanche. This Sanche applied for a patent on his swindling Oxydonor as early as 1887. His application was promptly rejected, on the ground that it was not an electrical apparatus—there is no electricity about it; and also that his claim, that it extracted oxygen from the air for the benefit of the patient, was ridiculous. He then admitted there was no electricity, but claimed that some other force circulated through the wire hitched to the patient's ankle. He also dropped the oxygen part of it; but it was again rejected. Permit me to make an extract from the *Official Gazette:*

> On January 31, 1888, these claims were rejected by the Primary Examiner for the reason that the apparatus must, if operative at all, be subject to the laws of electricity, or of some other force; it is not at all satisfactory to present it as an electrical apparatus, and at the same time to say that it is not subject to ordinary electrical laws, as has been practically done. It is not admitted that the body is a magnet, or subject to the laws of magnetism; and if it were, the apparatus described would have no influence upon it.
>
> The numerous affidavits which have been filed relate to the treatment described in another application, and have no bearing on the present case; and in any event, affidavits of the patients would not demonstrate the operativeness of the apparatus as an electrical device.

But year after year it seems he has kept on. Let me extract again from the words of the *Official Gazette:*

> After a careful re-examination and consideration of the arguments and evidence presented, my conclusion is unchanged; that is, that the invention is not "sufficiently useful and important" to warrant the grant of a patent. (Section 4892 of the Revised Statutes.)
>
> The novelty of the apparatus is admitted, and the affidavits and testimonials presented, together with the unsolicited reports that have come to me, leave no doubt in my mind that the use of the apparatus has in some way benefited some of the persons who have tried it. I am still of the opinion, however, that the favorable results obtained were due largely, if not wholly, to the imagination of the patient. It is a common practice among physicians to administer bread pills in certain cases; and the wearing of an iron ring upon the finger, or the carrying of a potato in the pocket is regarded by hundreds of people as a certain cure for rheumatism. Scores of similar remedies could be referred to, all of which depend for their efficacy upon the power of the imagination. The present application, in my opinion, is of this description. I could not conscientiously sign a patent for the apparatus in question.
>
> The former decision is adhered to.

Finally, however, in June, 1897, this man Sanche, by some hook or crook, has gotten some sort of patent. The reasons for revoking the former decisions and granting the patent are given below:

> "If some scientist will devise some way or means of working on the imagination so as to cure physical disease, he will be a public benefactor, and this Office will be prompt to issue a patent to protect him in the enjoyment of his invention or discovery, if it has the element of novelty. For we may be thus able to dispense, in part at least, with the nauseating decoctions that are now presented to our lips whenever we are ailing."
>
> It is thought that this claimant is justly entitled to a patent under the law, and the decisions heretofore rendered denying him a patent are set aside.

Now, friends, you have the history of this disgraceful affair, or at least a glimpse of it, before you. It is not only a disgrace to the man Sanche, for he is too hardened a sinner to hesitate at any thing to secure his purpose; but just consider the fact that our Patent Office should grant a patent, and permit the patentee to go out and humbug sick people, because they would be better humbugged in this way than to be dosed with "nauseating decoctions"!—taking it for granted, it would seem, that neither the one nor the other has any effect on the patient. We might laugh at the matter, and call it a joke; but this Dr. (!) Sanche calls himself not only a physician and a scientist, but a *Christian.* His hypocritical swindle is worked mainly through our religious periodicals. A while ago he secured the confidence of the women of the W. C. T. U., and persuaded them that he was a benefactor of mankind, and so got his fraudulent advertisements into their publications. He made it appear that he was a companion of Woolley and Moody. Our readers may remember that I exposed the latter scheme, and got a letter from Mr. Moody himself, saying that he knew nothing of the man or scheme, and never gave permission for his name to be used in any way whatever.

In God's holy word we have several accounts of the way in which the prophets of old pronounced sentence on those who appropriated "the livery of the Lord to serve the Devil in." Ananias was struck down dead; Gehazi, the servant of Elisha, when he undertook to make a little money because of being a servant of one of God's prophets, was smitten with leprosy; but in this nineteenth century, with all of our progress in science and art, and especially our discoveries in electrical science, such men as Sanche go about and ply their trade almost unrebuked. Religious papers accept their advertisements; and when anybody remonstrates, they reply that it is not their business to inquire into scientific merits of the thing; and even our Patent Office grants a patent when sufficient importunity is brought to bear, for no other excuse than that many of the drugstore medicines have no more sense or science to back them up than "the wearing of an iron ring on the finger, or the carying of a potato in the pocket," . . . . "as a certain cure for rheumatism."

Our Patent Office examiners are sharp enough and bright enough. Sanche's twaddle about oxygen and electricity, and some other force running along a single wire, was not listened to a single moment. He was ruled out again and again. If you want the history of the whole thing, send for the *Official Gazette* of July 6.

In our previous issue I spoke of letting rats and mice encroach upon us because of our half-heartedness; but how about letting these thievish rascals in human form prey upon us?

A young lady, who is almost our next-door neighbor, heard of Oxydonor, and was actually considering investing $25 of their hard earnings. Are the editors of our religious papers excusable for receiving advertisements of things they *know* and *admit* to be frauds and humbugs? Dr. O. W. Holmes said, some years ago, "Quackery hobbles along on two crutches. The one is the superstition of women, and the other is the indorsements of clergymen." Instead of clergymen he should say the editors of religious papers, to better fit the present time. You know, friends, how I have labored in this matter; but if I should take this *Official Gazette*, and read this whole thing to the editors of some of our religious papers, they would coolly inform me (in substance) that it was no business of theirs so long as they *got pay* for the advertisement! Let me digress a little.

A few days ago my sister, Mrs. E. J. Gray, a prominent worker and officer in the W. C. T. U., while attending a temperance meeting at Lakeside changed cars at Elyria and went in to purchase a ticket. A dull, stupid, country-looking chap stood in her way while she was purchasing her ticket. When she attempted to go out of the door this same chap stood in the doorway, evidently not having sense enough to go either out or in. She then noticed stupid-looking, awkward country chap No. 2, and they were around pretty near each other. When she attempted to board the train, these two ever-present "greenies" were in the way again, and she began to lose patience at their stupidity. The leader did not really seem to know enough to get out of the way; but she finally managed to get past them, but in doing so they gave her quite a push. She passed on, feeling vexed to think that anybody could be so dull as to be a continual stumblingblock in the way of busy people. Pretty soon she noticed her handkerchief half way out of her pocket, and then she found her pocketbook was missing. Then the whole thing revealed itself all of a sudden. This fellow was a pickpocket, and No. 2 was his "pal." She remembered the latter standing near, and almost remembered something passing between them when she jostled against No. 1. He stood by the ticket-office window to see where she kept her pocketbook; then he tried to get it while she pushed past him when going out of the door; but when he got in her way the third time, as she was getting on the train, he succeeded, and passed the purse to his pal, so that, even if she had had him arrested, she could do nothing. The ticket-agent informed her afterward that as many as three pocketbooks were found on the sidewalk that morning. These fellows quickly emptied out the money, dropped the pocketbook so to escape identification, and then stood around watching for more "game."

Permit me to say, before dropping the subject of pickpockets, that we should get rid of this pest of society and civilization just exactly as we get rid of rats and mice; and, furthermore, it is a disgrace in the locality to have such fellows prowling and succeeding in their work, just as it is a disgrace to have rats and mice in and around your premises. Wake up, and declare with manly energy that these things shall not be; then stick right to it till you get them trapped and the nuisance is abated.

Now for the bearing of the pickpocket story on the case before us. These two fellows, with their countryfied air and cheap ready-made clothing, were *rascals*. They ought to be, and the good of society demand that they *shall* be, speedily locked up, and then converted from the error of their ways. Their calling is a *disgraceful* one; and the matter is so self-evident that you look up in surprise when I say picking pockets is a "disgraceful occupation." But, my friends, these two chaps who aped stupidity are *gentlemen* beside the Oxydonor and Electropoise people. They do not ape *Christianity* — at least, I never heard of a pickpocket so doing; neither do they rob sick people — certainly not as a rule. They get their money from people who are able to go about and do business; and I shouldn't wonder a bit if they would actually blush with shame to be caught charging $25 or even $10 for a humbug scientific apparatus advertised in religious papers, and boomed by ministers of the gospel who lack even the rudiments of a knowledge of electricity or chemistry.

Do you ask how we shall abate the nuisance of pickpockets? Well, in the first place have your money stowed away in some place where a pickpocket can not readily get at it unless, indeed, he should knock you down. Then when you go into crowds or places where such fellows frequent, avoid showing money or your pocketbook. I have done quite a little traveling, as you may know, and I always make it a point to have the money for my ticket in my fingers, or in some convenient pocket, before I reach the ticket-office or get into the crowd. Never take out a roll of bills if you can help it, where people are standing around, especially among strangers. With a very little care you can manage to pay all your bills without having a sum of money in sight, or where a pickpocket can get at it. Especially, avoid anybody who seems to be awkward or always in the way. This is an old game. And, by the way, if people generally would take a little pains to avoid standing still in doorways or busy thoroughfares, or in crowded church-aisles, it would be a great help all round. I frequently come pretty near losing all the effect of an excellent sermon because somebody stands in the church-door, and goes neither in nor out, keeping a whole string, myself among them, waiting when I am in a great hurry. Perhaps I too am guilty sometimes of getting in the way of busy people; but I have made many big resolutions to try and not do it thoughtlessly again. I am under the impression that a *woman's* pocket is not the place to put money. I do not believe, either, it is just the thing for her to carry her money in her hands—at least, not very much money. I was just going to tell you where I carry my money in traveling; but it might be a bad plan to give away my secret. In the first place, I do not *have* much money. I carry checks of, say, $25 each, and these I can get cashed at any bank. Then I stow away the $25 where a thief can not easily get at it, taking out just enough for each day's expenses, when I am in a room by myself—that is, when I am among strangers. Rats and mice won't stay around, and, for that matter, frauds either, unless you bait them with something good that they can get at; neither will pickpockets. Let me modify the latter a little. Go into any town where saloons thrive and make a good living, and *there* you will find pickpockets. The scene I have described happened where a considerable-sized railway depot is planted right in the midst of a hot-bed of saloons. Banish the saloons, and you will get a good way along in banishing the pickpockets.

Now, then, while you are, by precept and example, saying to the saloon-keepers, pickpockets, and all others of that class, as did Paul in the language of our text, "Wilt thou not cease to pervert the right ways of the Lord?" let us also remember the slick persons who mix among Christian people, and get into the advertisers' department of religious papers, and induce ministers of the gospel and other Christian people to help them rob the sick, the suffering, and the dying. Let us cast out these persons who, under the guise of being philanthropists, scientists, and inventors, charge enormous prices for their hypocritical humbug toys. Let us *especially* beware of "false prophets which come to us in sheep's clothing, but who inwardly are ravening wolves."

NOTES OF TRAVEL

BY A. I. ROOT.

ON THE WHEEL.

After the torrid wave along the fore part of July the weather changed very suddenly; and as I was a little careless about changing my thin attire for one more appropriate for the weather, I took a severe cold and had another attack of malarial chills, or something like it. Of course I thought of my regular cure for such troubles—the wheel; but for two or three days, in spite of the beefsteak, I felt too sick to ride the wheel or to do anything else. However, on Saturday morning, July 17, I was agreeably surprised to meet Mr. E. C. Keck, of Bowling Green, Florida; and as he is interested in gardening, either north or south, I very much wanted to take him to the celery and small-fruit farms in our county. At first I planned to go with a horse and buggy; but I actually felt too sick to ride in a buggy twenty or thirty miles; but finding that Mr. Keck was something of a wheel-rider I said we would start out; and if I could not stand it I would go to the nearest station and return home on the cars. I remember of thinking, after I decided to go, that it was preposterous for me to undertake to go away from home in such condition. In fact, I had been feeling for some time previously that very likely the doctors were right in saying that I should never be a well man—that I might as well give up planning for any active work during the remainder of my life. Perhaps you have had such thoughts and feelings yourself.

Well, we started off on our wheels. I did not feel any worse during the first ten miles, and, in fact, I did not feel very much better. After we reached the celery-farm I told friend Keck I guessed I had better go over to the station and get home before I was any farther away. After looking over the beautiful plant of Jordan Brothers, however, and asking them questions about this, that, and the other treatment, I soon began to forget my aches and pains. Some little time ago, you may remember, I advised them to try one of the Breed weeders made especially for onions. They got a machine in accordance with my advice. Said I:

"Oh! by the way, how did your onion-weeder turn out? Did you get your money back on the investment?"

He turned around, and, in his peculiar way, lifting his hand as if to add emphasis, said:

"Mr. Root, that onion-weeder paid for itself in *one day*."

I do not know but he added afterward the expression was a little strong; but they really succeeded, as I thought they would, in not only running the weeder lengthwise of the rows, but they pulled it crosswise also. The boys who pulled it could easily step over the onions; and in this manner the ground was pulverized most thoroughly in and around and between the plants.

They were having some trouble by the first early celery sending up seed-stalks. I wanted to get at them myself and pull out the useless plants that were determined to go to seed; but the boss said, something as we have it in the parable, "Not so; for in pulling up the useless plants you will disturb and injure the good ones. Let them both stand till the harvest, which is soon coming, and we will sort out the bad ones as fast as they are gathered."

There was considerable discussion as to whether it was the strain of seed, the unfavorable weather during the spring, or a lack of water at a critical period; and I believe all decided that the latter was the trouble, or at least one of the prime causes of it. The most of this thing happened in the new celery culture where plants are put so very closely together, and, of course, it would need the greatest quantity of water, especially as they approached maturity. Where the plants were in rows two and a half feet apart or more a far smaller proportion had shot up seed-stalks.

They had the handsomest field of American Pearl onions I ever saw in my life; but as they were not started under glass, as our own were, it will be some weeks before they harvest their crop.

They are using, for a fertilizer on the celery rows, bone and potash. They were also sprinkling the beds with quick-lime in order to counteract the effect of blight, which made them much trouble last year. They began gathering and shipping celery about the middle of July.

When we were through talking I told Mr. Keck I felt so much better I thought I would venture to push ahead another ten miles. We had a macadamized road, and the wheeling was grand. When out four or five miles I noticed that I was beginning to draw in long breaths that filled my lungs completely, as I often do in climbing hills. It came natural and easy to fill my lungs clear out to the fullest extent — something I seldom do except when out on my wheelrides. A little later I felt my second wind beginning to reinforce my strength and buoy up my spirits; and when we came near the town of Lodi I had actually forgotten my indisposition. In passing a large raspberry-patch that covered the side of a hill I remarked to friend Keck that it was a part of Prof. W. R. Grannis' raspberry-farm.

A little further along I noticed a board on a gate-post, announcing, "Jersey cow and calf for sale. W. R. Grannis." So there was where he lives at present. We turned our wheels into the lane. The professor himself soon made his appearance, with one of his eyes swollen up. You see I sent him GLEANINGS complimentary a while ago, when I was writing up the raspberry business; and the result was he got to reading about *bees*. Without my knowledge he had also been studying the A B C book; and, sure enough, there was a row of neatly painted hives right along by the dooryard fence. He was going to show us some of the wonderful achievements his bees had been performing with the aid of the clover-fields all around about his pretty home. But we told him we wanted a drink of water before we explored either bees or berries. Said he:

"Well, you just come right into the house, both of you."

"But, friend Grannis, we have not time to go into the house. We will just sit out here in the shade."

"No, that will not do; you have got to come into the house to get the water."

Just then it occurred to me that Prof. Grannis and Dr. C. C. Miller are in many respects a good deal alike. They are both godly, both professors of music, both bee-keepers, and both have a quaint way of making you feel acquainted, even if you have never seen them more than two minutes. We followed our host into the house, then we turned into a room adjoining the kitchen. This room was paved with stone flagging; and right out from the stone wall in the further corner there came a stream of crystal water nearly as large around as your wrist. It poured into a large trough or vat, circulated around among the pans of milk, and passed out at another corner of the room.

"Why, friend Grannis, do you really mean to say that this is *spring water*, and that it runs that way nights and Sundays and all the year round?"

By way of answer he extended a drinking-glass, and told us to taste and see—beautiful cool spring water right out of the sandy rock in the hillside. After leaving his house the water flows through the barn, treating all his stock to a running stream, then it extends a little further to a trough by the wayside, where it refreshes the thirsty traveler and his beast. After we had drank sufficiently I wanted to wash my hands. While doing so some tame goslings came up and began to talk as if they wanted to get acquainted. May be you think it queer to hear me speak of goslings that could talk. Well, they did talk, and quite entertainingly (to me). The professor explained that they wanted me to hold down the wash-basin so they could get a drink. Then they wagged their tails and expressed their satisfaction as only a gosling knows how to do. You see, while friend Grannis enjoys himself with the berries and the bees his good wife raises ducks, chickens, and geese; and with this abundance of spring water, every thing goes on "swimmingly." I use this word after mature deliberation, and I think it is the right one. Well, I found so much to entertain me around that pretty home that we were urged to stay for supper. Friend Grannis promised us some white-clover comb honey, which he thought we did not often find. I told him I did not care so much about the supper, but I felt sure I should get home with much more satisfaction if I could have a nap of fifteen or twenty minutes, for you see I had not had one at all that day, and I considered myself an invalid besides, or at least I did so consider myself when I started away in the morning. I had forgotten to say that, some time during the visit, we looked over the fence and got at least a very good "glimpse" of the eleven-acre field of raspberries in full bearing, and I suppose that is the reason I did not want any raspberries for supper. I looked at them so long over the fence that I got over being raspberry hungry. See? They were Greggs, and just ripe enough to be luscious. Did I tell you I was on the beefsteak diet? Well, when I am off wheel-riding I leave my special diet at home.

If I remember correctly, friend Grannis is a professor of music; but of late I think he must do a great deal as I do—drop his mantle over his children's shoulders. When we were shown into another room after supper, and heard his grown-up daughter play, while Miss Lottie, only ten or twelve years old, sang to us, I really felt *ashamed* of myself to think I had not in the morning faith to believe that God in his great mercy had in store such exquisite happiness as I then and there enjoyed while listening to that music. The first piece was called "Dear Heart;" and if you have never heard it, please do not miss it when opportunity offers. The next piece was called "The Holy City." We call it "Jerusalem" for short. I shouldn't wonder if I enjoy music rendered by childish voices, in a way that I never shall and never can any other. And, again, that second wind that I get in wheel-riding gives me a zest, not only for a good supper, but for music, painting, oratory, literature, or any thing else.

When we started for home the sun was but little more than an hour high, and my special errand to Lodi was to investigate the new oil-works. Ten years ago or more they drilled for gas, and found a stream large enough to light the home of one of the owners, very fairly. Some time last winter the pipes began to send out *oil* instead of gas; and now a great derrick and immense pumping-engine are being put in place in order to gather the oil.

We reached home about eight o'clock in the evening. Our people were gathered out on the lawn; and, when I began, with great animation, to tell about our wonderful trip and its enjoyments, somebody asked about my sore throat and malarial chills. At first I did not exactly understand; and when I said, "Why, let me see! *was* I sick when I started away this morning?" they burst into a loud laugh; for, to tell the truth, I reached home in such exuberant spirits I actually had forgotten my experience of the fore part of the day; and I am afraid, dear reader, I had forgotten, till that moment, to give God the praise.

HIGH PRESSURE GARDENING

GROWING STRAWBERRY-PLANTS.

I have before explained many times why it is that a well-rooted young plant in July is worth ever so much more than one later. It is a good deal like the old adage—

A swarm of bees in May
Is worth a load of hay;
A swarm of bees in June
Is worth a silver spoon;
A swarm in July
Is not worth a fly.

But the way honey has been coming this summer, and that, too, during the last part of July, makes me inclined to think that a swarm of bees in July might this season be worth considerable after all. Well, a strawberry-plant put out in July may make two good plants in August; four by September; eight by October, and sixteen by November. If you have the plants in beds, and put on sashes, you may make thirty-two by Christmas. Again, if you keep off all runners, and just make the plant grow big and stocky, you may get a whole quart of berries from a plant that has not been located even one year. For the reasons just given, we *push* plant-rearing during this month. In fact, we have been shipping plants at a lively rate every day for several days back. Now, how shall we manage to get good stocky plants with the least expense and trouble? There is no better way to start them than the one laid down in the strawberry-book. Set out your plants in the spring in good rich ground well fined up, in rows four feet apart, the plants being two feet apart in a row. By July, if you have done your part with the cultivator and weeder and hoes, the plants will be setting considerably. Some say, keep the runners off till the plant gets strong; but this would deprive you of your early plants.

If, then, we are going to make the most of these early plants, how shall we manage to keep on cultivating, stirring the soil, and keeping out weeds? A problem besets us right here that I have discussed many times in these pages. The trouble is to find a man or boy who will put the runners in place so as to have them crowd each other as little as possible, and at the same time not get out into the row in the way of the cultivator. I have explained the thing over and over to men and boys whom I considered bright and intelligent. I have even made drawings on a board of what I wanted, and told them to take the board along down in the field; but I have been obliged to give it up in despair. When I go to look over the work I find runners rooted sticking right straight out into the row where the cultivator could not get through without digging them up. Then I would find three runners on one side of a plant, crowding each other, and not a runner at all on the other side. The plants would be altogether too close for thrifty growth in one spot, and great glaring vacancies where they might and should have been put. Some runners will grow a foot or more before making a bud for the plant; others will grow three or four inches. Now, the long ones should be made to fill the vacant spots that need filling, and let the short ones take the next best place. I suppose nobody else *loves* strawberry-plants as I do, and that is one reason why nobody else gives the matter sufficient thought and attention to make it a success.

Well, now, I have hit upon a little device that has enabled me to give my plants space in very good shape, and at comparatively small expense. When they began to put down runners on the Brandywine and Wm. Belt rows, I called two of my good boys, Carl and George. We first stretched a string just as near the row of plants as we could have it and still give room inside the string to set all the runners. Then the boys were given two trowels to break up the crust between the plants where the cultivator could not go, and make it all mellow. Then they put the runners down, placing a little dirt with the trowel over and around the bud, making each plant go inside the string. They thought I might give them a little more room by putting the string further away; but I told them we would put it further off next time. They got them all in nicely, leaving a space of five or six inches between every two plants. Then they took a hand-hoe and cultivated the ground up soft and fine clear up to the string. The string was then moved to the other side of the row, or, rather, two strings were used, one on each row of berries, leaving a path from 15 to 18 inches wide between the two strings. Here the boys stood (or sat down) while putting the plants in place.

After the row was finished, of course so much walking on the path would make it hard from the stamping. The boys therefore always went through with their wheel-hoe, and fined it up again. After the boys had finished their work, a nice shower of rain came up, and every plant they had put down was soon rooted, right where they put it. It was indeed a pleasant sight to behold, especially as the edge of the bed where the string was stretched was as straight as a line. A man could go in with a horse (and, in fact, did go in with a horse), and keep the space between the rows beautifully fined up and keep down all weeds.

Well, we are just now doing the same thing out in the field. A string is stretched each side of the row just as close as the stage of growth will allow. The plants were all made to go inside of this string. Vacancies that can not well be filled otherwise are fixed with the transplanter.

You may say it is lots of trouble to put every runner down by hand where you want a plant to grow; but I believe it is less trouble than to have your rows in certain places so wide that scarcely a path is left. A man who has any taste and skill at all will go into a nice strawberry-patch made as I have directed, and run his fine-toothed cultivator clear up to the point where the string was stretched, and will do you a handsome job. If you are selling plants, you get ever so much better roots to have the ground evenly occupied. Now try it, and see if my invention in strawberry-growing is not worth something, even if said invention is not (when you come right down to it) any thing more than a ball of string that costs only a nickel.

THE GAULT RASPBERRY.

Several have inquired why we have had so little to say of late about the everbearing raspberry. Well, we stopped selling plants some time ago because there was so much difficulty in getting them to grow. We have in some cases sent them the second or third time, and even then failed. Another thing, all of the blackcap raspberries on our grounds are affected more or less with anthracnose. Either of these reasons would be sufficient, perhaps, to explain why we no longer offer them for sale. One or two have been unkind enough to pronounce them a humbug. One of our clerks, while dictating a letter to one of these friends, remarked that, if the man could see the Gault raspberries in her mother's garden, he would never think of calling it a swindle. Our two boys, Frank and Fred, have just informed me that they have succeeded excellently with them at their homes. One or two have complained that they do not bear a second crop, and I believe this second crop sometimes fails to show up until the plant gets to be strong and vigorous. I think it is true, however, that, like many other new things, it does not seem adapted to *all* soils and all locations. This we find true with all sorts of berries, especially strawberries. The Jessie does wonders with one person, and with the next it does not seem to amount to any thing. Don't be in haste to claim you have been swindled because certain new fruits do not always do well on your grounds.

THE CRANDALL CURRANT.

We have just received from H. L. Wise, Berkley Springs, W. Va., some twigs by mail, loaded with Crandall currants, so large they look more like cherries than any thing in the currant line; and yet, from my own experience with a single plant which I have in my garden, I might claim *I* had been humbugged.

THE LOGAN BERRY.

This blackberry-raspberry has given us a few berries this year about as large as a good-sized blackberry, and as luscious, I should say, as any red raspberry. It is a very strong grower, and promises to be a desirable acquisition. The strawberry-raspberry, however, has not yet amounted to any thing in the way of fruit. Our June-berries have this season given us a good crop of most luscious berries. The birds take such a shine to them, however, that we had to fight for them after the birds discovered where our group of bushes was.

POTATO-BUGS, PARIS GREEN, ETC.

During the severe hot weather along the fore part of July, potato-bugs started out with almost unprecedented vigor. Hundreds of potato-growers found their vines almost stripped before they knew there was a bug in the fields. In fact, so great was the demand for Paris green that we received the following letter from one of the largest wholesale drugstores in Cleveland:

> *Gentlemen:*—As we are sold out of Paris green, and unable to procure in this city, and failed in our efforts to get a portion from Buffalo, Detroit, Columbus, and Toledo, we are in no position to serve our friends for this commodity. STRONG, COBB & CO.
>
> Cleveland, July 13, 1897.

We at once sent our order to New York, and got it filled promptly. Now, there is pretty sure to be a chance to learn something useful during all these extremes of temperature—or, if you choose, unexpected happenings. When we were sold out of Paris green we tested a great variety of "bug-powders," including slug-shot, buhach, hellebore, mineral ash, etc. While each and all of them do some good, there is nothing that approaches pure Paris green applied with the bellows made for that purpose; and there is nothing so sure and quick-acting, and nothing so cheap. That is my decision. A good many of these things kill by contact, and, for that matter, common road dust I have sometimes thought almost as good for the potato-bug larvæ, or slugs, as many of the expensive remedies. When they are greasy and shining, and covered with a sort of sticky liquid, any sort of dust, if there is enough of it to put on, is death to them. If this is alkaline, like mineral ash, or pungent, like slacked lime, perhaps it is somewhat better; but I do not believe potatoes make good progress when their foliage is covered with dust. A dusting of Paris green so slight that it can not be seen by the naked eye is death to the bugs; and if it does not rain, this same foliage is death to every insect that begins to gnaw the leaves.

Now just a word about prices on Paris green. It is all right for druggists to charge 10 cts. an ounce for things that cost them only 10 cts. a pound, where the article is called for only once in a while, or where they have to furnish a bottle and cork, or something of that sort; but to charge 35 and 40 cts. a pound for Paris green, when it may be had wholesale for 14 or 15 cts., is not Christianlike nor businesslike, in my opinion. Paris green has come to be a great staple. Farmers must have it, and they can not afford to pay great prices. My 100-lb.

shipment cost me in New York 13 cts. per lb., and I can easily put it in ¼-lb. packages and sell them for 7 cts. each, or a whole one-pound tin can for 22 cts., and we can furnish absolutely pure Paris green at this price. Now, I am not mentioning this to advertise it, but to advise you to purchase it at your nearest drugstore. Show this article to your druggist, and I think he will agree to furnish it at these prices, and I will tell him where to buy it if he wishes me to do so.

In the *Rural New-Yorker* I notice some discussion as to why the bugs are worse on some varieties of potatoes than on others. The *Rural* says, and with much truth, that the bugs pitch into the potatoes latest planted. This is true until you come to potatoes planted in July, that come on after the worst of the bug season is over. I have seen acres of such potatoes with not a bug to be found. By the way, there is a good prospect that the great raid of bugs is going to make potatoes scarce and high-priced; at any rate, it will pay the potato-grower to watch his vines closely. With a good gun (or bellows), and plenty of good Paris green, it is not a very expensive job to keep the bugs off entirely; and if you kill them thoroughly one season you will find it much easier to fight the battle the season afterward. One thing more:

There are certain varieties of potatoes that are much less liable to be troubled with bugs, and I believe it is, as a rule, the rank strong growers, especially among the late potatoes. Manum's Enormous and Craig are troubled but little, comparatively. Years ago we noticed that the Rural New-Yorker was not troubled nearly as much by bugs as the other kinds. I am sorry to say that the Thoroughbred seems to be especially picked out by the bugs.

MY GOOSEBERRY STORY.

Gooseberries have been rather slow sale now for two seasons; yet we have sold quite a few this summer at 5 cents a quart. I thought at first this was a rather low price, and was questioning whether it paid, so I made a little investigation. Two or three years ago I thought I should like to see what gooseberries would do down on our very rich creek-bottom land, where every thing goes to vines and foliage. So I moved seven or eight gooseberry-bushes down there and watched for results. Last year one of the bushes grew taller than my head, and bore a pretty fair crop of berries. This season it was once more loaded with berries. In fact, the tall bushes bent clear over and rested on the ground. This bush has already given us a peck of berries, and there is certainly another good peck to be picked. I think the variety is the Houghton, but the bushes are very tall and spreading. There are no thorns on the bush or on the berries; and this is a matter of some moment also, because, where there are no thorns in the way, you can hold a basket under the branches and strip the berries right off. I think one could easily strip off every berry in this way in half an hour. In fact, it ought not to take more than a quarter of an hour. But we will estimate the crop from the one bush at half a bushel, and the cost of picking at 5 cts. That leaves 75 cts. profit for a single crop on one gooseberry-bush. This seems almost incredible; but there is the bush with half of its crop remaining. Besides the peck that has already been picked I have helped myself quite liberally, and advised my friends to do the same, several times. They are just now ripe enough to eat. I begin to think one reason why we have not sold our gooseberries better is because we have not sold them cheap enough. If a market can be found for them when canned, there is a tremendous chance for a gooseberry-farm. They are not perishable; and there is so little danger of bruising in handling, that, when they are gathered green, they might be sent to market in a bag; and the bag, if it did not contain too many berries, might be carried on horseback. Then there is an opening for gooseberry jam and gooseberry jelly. Can anybody tell us more about it?

Mr. Root: — I should like to have Dr. Miller tell whether sweet clover does as well if sown in the fall as in the spring; also your opinion, and whether it has to be sown every two years, as some claim.

Luce, Mich., July 23. WM. CRAIG.

I can only answer for myself, that I know nothing about it; but I know that the seed that drops off in the fall comes up the following spring. We have not sowed any sweet clover anywhere for a good many years, and we never sowed *any* along the fence-corners and waste places, although we have been many times charged with so doing. Will Dr. Miller please answer?

Special Notices in the Line of Gardening, etc.

By A. I. Root.

A "DARLING" STRAWBERRY-PLANT FOR EVERY DOLLAR SENT US FOR GLEANINGS.

As we think the Darling is sure to please, and as we want all of you to see one of our "new-process" potted strawberry-plants with the jadoo fiber, we have decided to send one plant free, postpaid by mail, to every one who sends a dollar for GLEANINGS during the month of August. Here is what the originator, M. T. Thompson, Rio Vista, Va., says about the Darling: "If there ever was a berry that would produce 1000 bushels per acre, it is this one. It is a seedling of Michel's Early, and has fruited for us two years. Price of plants, $3 per dozen."

STANDARD STRAWBERRY-PLANTS.

We are now prepared to furnish the old standard varieties of layer plants at our old prices as follows:

10, 15 cts.; 75 cts. per 100; $6 per 1000. If wanted by mail, add 5 cts. for 10, 25 cts. per 100, for postage. The varieties that we now have ready to send out are Jessie, Parker Earle, Michel's Early, Warfield, Bubach, Edgar Queen, and Haverland. Please notice we are not yet prepared to send these out in quantities during the present month larger than 10 or perhaps 100 of each kind; and if many orders should come in, yours is likely to be delayed until they get to be better rooted. These older varieties can be potted by the new process at a cost of one cent each extra, and a delay of ten days or two weeks of time, for we shall pot the old standard varieties only after they are ordered.

GOVERNMENT AGRICULTURAL REPORT FOR 1896.

The Year-book for the Department of Agriculture for 1896 is the most valuable publication I have ever come across among the government reports. It is a book of nearly 700 pages, profusely illustrated with beautiful pictures touching upon many points of intense interest to farming, gardening, and other branches of agriculture. Among the subjects treated are steam-apparatus for spraying; potash, its function in agriculture; irrigation on the great plains, including pictures of home-made windmills; seed-production and seed-saving; migration of weeds; cow peas; improvement of our native fruits; planting waste places; asparagus-beetles, etc. Of this book 100,000 copies have been printed. You can get one free by writing to your Representative in Congress.

ASPARAGUS-BEETLES.

For many years I have read about asparagus-beetles, in our various agricultural papers, but rejoiced that we had never known an enemy to the asparagus in our locality—beetle or any thing else. A few days ago, however, one of the boys called my attention to the fact that one of our asparagus-patches was literally stripped of its foliage by a bright handsome little bug and a sort of worm that followed it. They seemed to work exactly like the potato-beetles, bugs and larvæ right along together. We brought out our gun for dusting dry Paris green, and both bugs and larvæ quickly "tumbled to the racket," as the boys say. Now, then, look out. Just as soon as you see a dozen of these bugs (and you may know them because they are such good-looking rascals) on your asparagus you had better commence dusting, wherever you see them, with Paris green. The government report I have mentioned recommends dusting them with dry quicklime, which may answer every purpose. The above report estimates that in York State, where asparagus is largely grown, this beetle did $50,000 damage in just one county. Chickens will eat them readily if the bushes are shaken or cut down so the chickens can reach them. Whatever you do, do not let them go on until your prospects for an asparagus crop next spring are ruined.

TRANSPLANTING STRAWBERRIES.

I have just made a discovery in connection with the use of that jadoo fiber I spoke to you about last month, that I think is going to prove of very great value in disseminating new and high-priced varieties of strawberries. All the vegetable-plants we send out are, as you know, either once or twice transplanted. The transplanting is mainly that we may get a mass of good strong bushy roots. Now, I have for years felt that it would be exceedingly desirable if we could do this with strawberry-plants, say along in July and August. A great many times where you send them out thus early there will be a large showy top and comparatively few roots. Of course, you can pull off the greater part of the leaves, but this does not answer the purpose as does transplanting. Now for my invention:

Potted strawberry-plants are no new thing, as you well know; but there have always been two troubles with them; namely, they can not be sent by mail because the moist earth is too heavy; and if they are not taken up and shipped as soon as the roots fill the pot, they will soon be pot-bound.

The jadoo fiber has proved to be a wonderful success. If the pots are packed with this material, the roots of any strawberry-plant will, in an incredibly short space of time, permeate the whole pot; and the jadoo fiber is so light that, with a proper amount of moisture, half a cent will pay the postage on a plant. Another thing, it holds the moisture better than any thing else I ever saw. So you see we have succeeded in sending potted plants by mail, including the soil that filled the pot. There is no need of sending the pot along with the plants, because the jadoo fiber holds together so well, especially when permeated by the strawberry-roots, that it can not be easily shaken off. I have tumbled the plants around, and taken them out of the pots dozens of times, even during the hottest days, and have fully demonstrated that they stand any amount of handling without even having the foliage droop.

Well, I have done pretty well, haven't I? But the most important part of my discovery is yet to come. It is this: Just as soon as your pots are full of roots, sever them from the parent plant; slip them out of the pots, and set them out in regular plant-beds spaced, say, three or four inches apart. They can be shaded and watered in this plant-bed if necessary; but unless the weather is severely hot, I do not think shading will be needed. In three or four days little white roots will shoot out in every direction from this ball of jadoo fiber. In fact, some of our little plants have sent out little white roots in such numbers that it looks almost like the hairs on a frightened pussy cat; and every gardener and florist, when he sees these new white roots, knows his plants are in the best possible condition. I need not tell you that our plant-beds are made exceedingly rich, so that every thing grows under high pressure when it starts out.

Now, my dear friend, how much more do you suppose such transplanted potted plants are worth than the ordinary layer plants, especially for fall planting? I am so anxious to have you see what they are like that we will send you one or more plants postpaid by mail at the following prices:

PRICES OF TRANSPLANTED STRAWBERRY-PLANTS FOR THE MONTH OF AUGUST.

NAME.	Each	10	100	
Darling	25	$2 50		Any of these will be 1 cent per plant less for layer plants.
Carrie	20	1 75		
Earliest	20	1 75		
Nick Ohmer	.15	1 50		
Margaret	.10	1 00		
Marshall	6	40		
Brandywine	. 6	.40	$3 50	
Wm. Belt	. 6	.40	3 50	

All the varieties above, except Carrie, are perfect. At the above prices we pay postage or express charges. Where there is an express office near your home, we prefer to send 50 or more by express.

CONVENTION NOTICE.

MR. EDITOR:—The next annual convention of the United States Bee-keepers' Union will be held in the main hall of Caton's Business College, corner of Main and Huron Sts., Buffalo, N. Y., commencing at 10 o'clock A. M., August 24th next, and closing on the afternoon of the 26th.

Papers are to be read by W. Z. Hutchinson, R. F. Holtermann, E. Whitcomb, Hon. R. L. Taylor, Mrs. L. Harrison, R. C. Aikin, G. M. Doolittle, Dr. J. P. H. Brown, Hon. Eugene Secor, G. W. Brodbeck, M. B. Holmes, A. E. Manum, E. Kretchmer, and P. H. Elwood; to which will be added the President's Address; and perhaps the General Manager and the Secretary may have something of interest to present.

The programs are now printed, and are in the hands of the Secretary. There are six bee-keepers' songs, with music, in the program, and abundance of time is allotted to the discussion of all papers, and for the asking and answering of questions.

Any one not a member of the Union can have a program sent him by mail on receipt of 5 cents in stamps, by the Secretary.

Several of our well-known bee-keepers, such as A. I. Root, Dr. Miller, S. T. Pettit, and others, who are not on the program, will be present to help make the convention interesting and instructive.

It is probable that suggestions will be made at this convention in the line of so amending the constitution of the Union as to remove its objectionable features and add such other provisions as may seem desirable; and suggestions in this line by those not able to be at the convention can be sent to the Secretary, to be brought before it. Some suggestions have already been received by the Secretary, and others have been made in the bee-papers

Those going to the convention should buy round-trip tickets to the Grand Army of the Republic encampment (not to the United States bee-keepers' convention), which meets in Buffalo during the last week of August. The G. A. R. have secured a rate of one cent a mile each way in the territory of the Central Passenger Committee, which is included by Toronto, Canada thence on a line to Port Huron, Mich.; all of the southern peninsula of Mich.; Chicago, Peoria, and Quincy, Ill.; St. Louis, Mo.; Louisville, Ky., and Pittsburg, Pa. The Western Passenger Association and the Trunk Line Association make a rate of one fare for the round trip in their territory, to places in the Central Passenger Association, from which points the fare will be one cent a mile each way; but tickets must be purchased to Buffalo from the starting-point. Inquire of your ticket or station agent in all territory outside of those named above for rates and the time the tickets are good for, for I have been unable to learn the rates in such territory, but presume they will be the same as those of the Western Passenger and the Trunk Line Association; but be sure to inquire of your ticket agent, as above suggested.

In the Central Passenger and Trunk Line territory, tickets will be good going Aug. 21, 22, and 23; and, if vised at Buffalo, will be good, returning, for 30 days.

Mr. O. L. Hershiser of Buffalo, has charge of arrangements at Buffalo, and will attend to the matter of hotel rates. Mr. H. writes: "I purpose obtaining accommodations in private families for all bee-keepers who prefer such to hotels." Members of the Union can learn in regard to hotel rates by applying to the Secretary at the place of meeting. If known in time, hotel rates will be given in the bee-periodicals.

A. B. MASON, Sec., Station B, Toledo, O.

The annual meeting of the Northern Illinois Bee-keepers' Association will be held at the Court-house, in Freeport, Ill., on Tuesday, August 17, 1897. All are cordially invited.

B. KENNEDY, Sec., New Milford, Ill.

FOR SALE--140 Colonies Bees.

With fixtures up to date. Three hundred extra hives. Also ten thousand pounds of honey—this season's crop. Part of honey is in one-pound sections and remainder extracted, and to be. Bargain for some one. Yours for business,

ANTHONY OPP, Helena, Ark.

NEW PRICES

ON

COLUMBIA BICYCLES.

THE STANDARD OF THE WORLD.

1897 COLUMBIAS The best Bicycles made,	Reduced to	$75
1896 COLUMBIAS Second only to 1897 Models,	Reduced to	60
1897 HARTFORDS Equal to most bicycles,	Reduced to	50
HARTFORDS Pattern 2,	Reduced to	45
HARTFORDS Pattern 1,	Reduced to	40
HARTFORDS Patterns 5 and 6,	Reduced to	30

Nothing in the market approached the value of these bicycles at the former prices; what are they now?

POPE MFG. CO., Hartford, Conn.

Catalog free from any Columbia dealer; by mail for a 2-c. stamp.

B. Hendrickson, Agent.

Medina, Ohio.

Are You Going to Buy

Apiarian Supplies or Bees?

If so, You Want the Best.

This is the only quality we offer. Our prices are right, and our '97 catalog describing them, and the management of bees, is yours for the asking.

We carry a large stock, and can ship promptly. Freight is a big consideration, often amounting to 20 per cent of the value of goods. Let us quote you prices on what you need, delivered at your station.

Freight Paid.

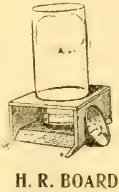
They will cost but a trifle more than others charge at the factory. Our aim is to please.

Apiary, Glen Cove, L. I. **I. J. STRINGHAM, 105 Park Pl., N. Y. City.**

Queens, Either Golden or Imported, by return mail. Untested, 75c; Tested, $1.; Breeders, $2.
W. H. LAWS, - Lavaca, Ark.

Don't Neglect Your Bees.

Bee-keeping may be made uniformly successful by judicious feeding. It is just as important with bees as with other stock.



Success in feeding depends very much on the feeder used. When you have tried the

Boardman Atmospheric Entrance-feeder

you will be convinced of this.

For descriptive circulars and price list, address

H. R. BOARDMAN, East Townsend, Ohio.

QUEEN, 60 cents; three or more, 50 cents; dozen, $5.50; tested young, 75 cents.
J. B. CASE, Port Orange, Fla.

BUCKWHEAT AND CRIMSON CLOVER.

The question is often asked, "How late can we sow buckwheat, with a reasonable chance of getting a crop of seed?" The best crop I ever raised was sown as late as the 15th of August; but, of course, much depends upon how early we have a killing frost. You can get blossoms for honey, probably, if sown any time during this month. The best yields of seed are from seed sown in the fore part of August, if the frost holds off. We have still a good supply of seed in stock.

Now is the time to sow crimson clover all through the North. It may winter all right if sown a month later; but the sooner you get it in, the better. From the amount of home-grown seed that is offered us for sale, I think it has been quite a success all through Ohio during all this past season. Remember, a two-bushel bag of buckwheat is now only $1.10; and a two-bushel sack of crimson clover is only $5.50.

KIND WORDS FROM OUR CUSTOMERS.

STRAWBERRY-PLANTS BY MAIL, POTTED IN JADOO FIBER.

Friend Root:—The Nick Ohmer strawberry-plants, potted in jadoo fiber, came to hand by mail in splendid condition. I do not see why it should not prove to be an entire success. I shall be glad to learn more about it. I have an idea that plants potted in the jadoo fiber will thrive much better. The weight is certainly many times less. C. N. Flansburgh.

Leslie, Mich., July 26.

Having lately purchased your A B C of Bee Culture I can not help writing to state my appreciation of the work. It reads like a romance. You have a way of simplifying facts whice attracts the eye and commands the reader's attention. Perhaps I can pay you no higher tribute than to say the reading of your book is alone sufficient to give a novice the bee-fever.

Mrs. L. E. R. Lambrigger.

Niobrara, Neb., June 23.

Mr. Root:—The strawberry-plants came to-day in perfect order, and are set out, and it is now pouring down rain. I couldn't have received them at a better time. They are splendid plants. With such high-priced plants I did not expect extra ones; but they were there. Many thanks for the same.

Nashville, Tenn., July 15. Joe L. Cooper.

[My good friend, I did not know that our boys gave extras with the high-priced plants. Perhaps it was a mistake in your case, or may be one of the plants was small. I have thought best to mention it, so that others might not expect us to send more strong plants than we really advertise.—A. I. R.]

[The following comes to us on a postal card. What do you think of it?]

Millions of our farmers have been destroyed, soul and body, by our legalized saloons and open harlot-houses, and millions more are paralyzed by them so they are worthless. And millions of homes are desolated, and millions of acres are turned out or are not half farmed. And still our authorities force it on us to rob and to murder our nation. H. Hansen.

Pasadena, Cal.

The New Weed Drawn Foundation.

This is a success. Don't take the statement of any one else, but send for samples and try it yourself. Pieces 4 inches square, and running about 11 feet per pound, are now being sent out. PRICES:—3 pieces, 4x4, 10c; by mail, 12c. 10 pieces, 25c; mail, 30c. 24 pieces, 50c; mail, 60c. Half-pound packages at 75c with other goods, or 90c postpaid.

THE A. I. ROOT CO., Medina, Ohio.

CHAS. ISRAEL & BROS.,

486, 488 & 490 Canal St., Corner Watts St., N. Y.

LIBERAL ADVANCES MADE ON CONSIGNMENTS.

HONEY —AND— BEESWAX.

WHOLESALE DEALERS & COMMISSION MERCHANTS. Established 1875.

IF YOU WANT BEES

that will just "roll" in the honey, and that are wonderful red-clover workers, also gentle to handle, and exceedingly hardy, then try **MOORE'S STRAIN OF ITALIANS,** the result of 18 years of careful breeding.

Warranted queens, 75 cts. each; 3 for $2.00; per doz., $7.00; tested, $1.00; select tested, $1.50; select warranted, $1.00. Strong 3-frame nucleus, with warranted queen, $2.50. Safe arrival and satisfaction guaranteed. Circular free. Those who have never dealt with me I refer to A. I. Root, who has purchased of me over 850 queens.

J. P. Moore, Morgan, Pendleton Co., Ky.

"Watch Pouder's ad"

SEE THAT WINK? BEE SUPPLIES.

Root's Goods at Root's Prices.

Pouder's Honey-Jars and every thing used by bee-keepers. Low freight rates; prompt service. Catalog free.

WALTER S. POUDER,
162 Mass. Ave., Indianapolis, Ind.

MUTH'S HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
ROOT'S GOODS AT ROOT'S PRICES,

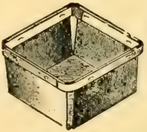
Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "**Practical Hints**" will be mailed for 10 cts. in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Fruit Packages of all Kinds,

also

Bee-keepers' Supplies.



Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX CO.,
Berlin Heights, Erie Co., Ohio.

ORDERS filled by **return mail** for the choicest untested Italian queens at 60c each. Can furnish one, two, and three frame nuclei. A. I. Root Company's supplies. Send for 36-page catalog.

JOHN NEBEL & SON, High Hill, Mo.

Italian Queens, either golden beauties or 3-banded imported stock. Tested, 90c each; untested, 55c each; 6 for $3.00. One sample queen to new customer, 50c; breeders, $2.00 to $3.50 each. P. O. M. O. office, Lavaca. **E. A. SEELEY, Bloomer, Ark.**

THE A. I. ROOT CO'S

Shipping-cases for Honey,

AT THEIR PRICES—THE FINEST MADE.

CASH FOR BEESWAX.

M. H. HUNT, Bell Branch, Mich.

WARRANTED Three and Five Banded Italian Queens at 50 Cents each.

GEO. W. COOK, Spring Hill, Kan.

AGENTS' OUTFIT FREE. No Capital NEEDED.

Weekly sales pay big money.

We make a high grade **BICYCLE** as low as **$24.00.** **Fully guaranteed.** Shipped anywhere on approval, **direct from our factory.**

ALPINE CYCLE CO., Dept. 144 **Cincinnati, O.**

If You Want Queens By Return Mail,

Bred in full colonies, from the very best honey-gathering strains in America, crossed with drones from a different mother to avoid inbreeding, send in your orders at once.

Tested, - - -	**each**	**$1.50.**
Warranted purely mated,	**each**	**.75.**
“ “ “	**1-2 doz.**	**4 00.**
“ “ “	**1 doz.**	**7.00.**
Untested, - - -	**each**	**.65.**
“ - - - -	**1-2 doz.**	**3.50.**
“ - - - -	**1 doz.**	**6.50.**

Send for 37th Annual Descriptive catalog. Full line of Bee-keepers' Supplies. Address

W. W. CARY, Colrain, Mass.

Queens Given Away.

Gray Carniolans and Golden Italians. We will give a fine tested queen (either race) to all customers ordering six untested queens, and a fine select tested queen to all who order 12 untested at one time. The queens given away will be sent to customers in August.

Grade and prices of bees and queens.	Apr., May, June.	July, Aug., Sept.
Untested queen	$ 75	$ 65
Tested queen	1 50	1 25
Select tested queens	2 50	2 25
Best imported queens	5 00	4 00
1 L.-frame nucleus, no queen	75	50
2 L.-frame nuclei, no queen	1 50	1 00
Full colony of bees, no queen, in new Dov'd hive	5 00	4 00

We **guarantee** our bees to be free from all diseases, and to give entire satisfaction. Descriptive price list free.

F. A. Lockhart & Co., Lake George, N. Y.

Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Single Tube —— India Bicycle Tires.

Good ones, too, for

$5.00 Per Pair.

Including repair kit and pump. We have given them a thorough test and find them well made and durable.

THE A. I. ROOT CO., Medina, O.

Look Here!

Do you need queens? the purest and best. If so, we are prepared, by return mail, to ship the 3-band and golden Italians, and silver-gray Carniolans, untested, warranted purely mated, for 50c; tested, 75c; breeders, $2.25.

JUDGE E. Y. TERRAL & CO., Cameron, Texas.

QUEENS BY RETURN MAIL.

Daughters of best imported queen mother, warranted purely mated to drones of imported stock from a different source; hence, a direct cross. 12 years as a honey-producer on a large scale has taught me what good queens mean to the producer, as well as how to rear them. Price of queens, 50c each. Safe delivery and satisfaction, or money refunded.

L. H. ROBEY, Worthington, W. Va.

Requeen, Requeen, Requeen.

Now is the time; queens are cheap.

Best untested Italians, 50c, $6.00 per doz.; tested, 75c, $9.00 per doz. These are "Shaw queens." Try them. Every one knows they are good as the best. Orders filled by return mail, and satisfaction guaranteed,

J. W. K. SHAW & CO.,
LOREAUVILLE, LA.

Second-hand Bicycles in Trade for Honey or Beeswax.

One 1895 Victor, 24-inch frame, 64 gear, Morgan & Wright tires, in good running order, weight 28 lbs., $18.00. One ladies' Monarch, '94 pattern, Morgan & Wright tires, wood handle-bars, in good running order, weight 33 lbs., $15.00. One girl's wheel, '90 pattern, 24-inch wheels, cushion tires, $4.00. Will take white honey or beeswax at market quotations. Fuller particulars furnished upon application.

THE A. I. ROOT CO., Medina, Ohio.

For Sale.== Bees and Queens.

Queens, 50 cts.; nucleus, two-frame, with queen, $1.50; one-frame, $1.00; three-frame, $2.00.

Mrs. A. A. Simpson, Swarts, Pa.

RUBBER STAMPS should be used by bee-keepers. We make them at 5c per line. Ink-pad 2c extra. Less than half price.

Climax Stamp Works, Box 300, Russellville, Ala.

QUEENS. I have 500 untested; 3 or 5 banders, 45c each; tested 3-banders, 70c each. They are fine large queens, and are free from all diseases. Write for wholesale prices. M. O. office.

DANIEL WURTH, Falmouth, Rush Co., Ind.

Golden,
Adel,
Albino.

Texas Queens.

Dr. Gallup says they are the best he has in his yard.

J. D. GIVENS, Lisbon, Texas.

500 UNTESTED QUEENS from imported Italian mothers. My queens produce gentle bees and superior honey-gatherers. Fifty cents each; $6.00 per dozen. How many do you want?

W. C. FRAZIER, Atlantic, Iowa.

GERMAN CARP WANTED.

1000 this year's; 100 or more last year's. Prices must be reasonable. Send offers to

DR. WM. MOERSHEL, Homestead, Iowa.

Carp to be shipped in August or September.

I have 50 black and mismated queens to sell for 25 cents each; ten, to one address, $2.00.

C. G. MARSH, Belden, N. Y.

Wants and Exchange Department.

WANTED.—A location for a custom saw and feed mill.
W. S. AMMON, Reading, Pa.

WANTED.—Bee-hives and comb foundation, in exchange for Italian queens and nuclei.
J. P. MOORE, Morgan, Ky.

WANTED.—To exchange 140 colonies of bees, with all fixtures belonging to a first-class apiary, for good horses and mules.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange So. Omaha lot, value $450, for gasoline-engine, lathes, or other machinists' tools, comb or extracted honey, or bees in Hoffman frames.
A. W. DUDLEY,
915 Locust St., St. Louis, Mo.

BUY DIRECT

and pay but one profit. Our assortment is one of the best and most complete in

FRUIT and ORNAMENTAL TREES, SHRUBS, PLANTS, ROSES, VINES, BULBS, SEEDS

Rarest new, choicest old. Send for our **catalogue to-day;** it tells it all; **an elegant book, 168 pages, magazine size,** profusely illustrated, **free.**

Seeds, Plants, Bulbs, Small Trees, etc. by mail postpaid, safe arrival and satisfaction guaranteed. Larger by express or freight. 43d Year. 32 Greenhouses. 1000 Acres.

STORRS & HARRISON CO.,
Box331 Painesville, Ohio.

Ajax

Bicycles.

Price only $35.

We have sold a large number of these bicycles, and they are giving universal satisfaction. For instance, the following letters will explain:

"The Ajax bicycle arrived Saturday in good condition. It is entirely satisfactory in every respect It is a handsome and easy-running wheel, and has the appearance of one put up for service.
FRANK WRIGHT."
"Laporte, Mich., June 28, 1897.

"The Ajax wheel, Model 37, with baby carrier (Kalamazoo) came all right, and it is really better than I expected; although I have learned that when The A. I. Root Co. say a thing is first-class it is as represented.
THOS. M. TODD."
Payson, Utah, July 8.

We have so much confidence in these wheels that three of them have been and are now in use in the Root firm; and E. R. Root expects to make his bicycle-tour on one of these through the East this summer. They are up to date, have large tubing, wood reversible handle-bars. Morgan & Wright double-tube or single-tube tires, with option of gearing and option of height of frames, and a choice of finish.

We will sell these wheels and take in trade beeswax or first-quality honey at market prices. We have only a few in stock; and after those we have on hand are gone we wilt not dispose of more in trade.

A beautiful catalog, showing these wheels up in full, sent on application.

THE A. I. ROOT CO.,
Medina, Ohio.

FOR SALE.-- Large American fruit-evaporator cheap. EZRA G. SMITH, Manchester, N. Y.

HALF PRICE.

After June 10th we sell eggs from all our yards at HALF PRICE ($1 per 15). Eggs will be from our best pens, and handled with the same care early orders receive. Our breeds:

Barred & White Pl. Rocks, Lt. Brahmas, Langshans, Bf. Cochins, White Wyandots, Brown & Buff Leghorns, Pekin Ducks.

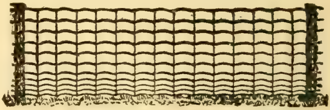
Our stock will surely please you; order now.

POULTRY SUPPLIES.

We are America's Headquarters. Biggest Stock, Lowest Prices, Quick Shipments.

NISSLY'S POULTRY ANNUAL and catalogue of "EVERYTHING FOR THE POULTRY YARD" is a book of 80 6x9 pages, finely illustrated and full or information. The book is FREE TO ALL, but we request a 2c stamp for postage.

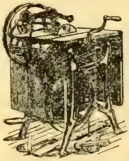
GEO. J. NISSLY, Saline, Mich.



No Expense For Threshing.

There is a simple little machine on the market, which can be had for $1.—, with farm right to use it. This tool was named "flail," but if it is called "hurricane," the work will be easier. The farmer's **time** is nothing, and after threshing is finished, he can buy a little "pocket whirligig" and build fence Of course the **progressive** farmer will not try to compete with steam, either in threshing or fence building. He uses the **PAGE.**

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.



ONE MAN WITH THE UNION COMBINATION SAW

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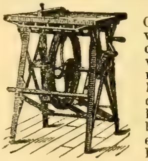

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United States Bee-keepers' Union.

Organized to advance the pursuit of Apiculture; to promote the interests of bee-keepers; to protect its members; to prevent the adulteration of honey; and to prosecute the dishonest commission-man.

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Next Annual Meeting at Buffalo, N. Y., Aug. 24—26, 1897.

Honey Column.

CHICAGO.—The offerings of comb honey are in excess of the demand, which of course is quite limited at this season of the year. The receipts also consist of small lots, it being the idea of some shippers to feel of the market by sending a little quantity and waiting for results. Then, again, others have just got a little ready, and sent that pending the time when larger consignments will go. As a rule, in large markets, small consignments will not sell as readily, nor for as much money, as a large, even-running lot. Fancy white comb commands 12c; No. 1, 10@11; no dark offered; extracted white, 5@6; amber, 4@5; beeswax, 26@27.

R. A. BURNETT & Co.,
Aug. 7. 163 South Water St., Chicago, Ill.

MILWAUKEE.—There are no special features of interest to bring out prominently regarding this market for honey. The supply is quite good—some old crop and some new. Have already received both of the extracted and comb. The demand is very small just now, although we are quite confident later the trade will be good, and prove a proper market for your shipments. Can now quote 1-lb. sections of white No. 1, at 12@13; No. 2, 8@10; dark, 7@10; extracted in barrels and kegs, white, 5@6; dark, 4@5; beeswax, 25@27.

A. V. BISHOP & Co.,
Aug. 7. Milwaukee, Wis.

NEW YORK.—There is some demand for new-crop white, and some lots received sold at 10@12. Prices are not settled, and this is not a criterion of our market, which actually does not open up until about September 1st. Extracted—market quiet and easy, with large arrivals from the South and California. We quote California light amber at 4½@4¾; California white, 5@5¼; Southern, 50@55 per gallon, according to quality. Beeswax without change.

HILDRETH BROS. & SEGELKEN,
Aug. 9. 120-122 W. Broadway, N. Y.

BOSTON.—New honey is coming very slowly as yet, but as the demand is light there is ample supply. Very little old here. We quote our market on fancy white at 13; No. 1 comb at 11@12; no sale or inquiry for any dark. Extracted very light demand—prices for white, 6@7; light amber, 5@6; beeswax, 27.

BLAKE, SCOTT & LEE,
Aug. 7. Boston, Mass.

ST. LOUIS.—Fancy white comb, 12@12½; No. 1 white, 11@11½; amber, 9@10½; dark, 5@8½; extracted white, 5@5¼; amber, 4@4½; dark, 3½@4; beeswax, prime, 24; choice, 24½@25. Since our last quotations, one car, 24,000 lbs., has been sold at above quotations. With present prices on sugar, think there should be a good demand for extracted honey.

WESTCOTT COMMISSION CO.,
Aug. 9. 213 Market St., St. Louis, Mo.

CLEVELAND.—Very little new honey in the market. The demand for new honey this past week was fairly well this early in the season. No demand for old honey whatever. Fancy white, 12½@13; No. 1 white, 11@12; white extracted, 6@7.

A. B. WILLIAMS & Co.,
Aug. 10. 80-82 Broadway, Cleveland, Ohio.

PHILADELPHIA.—Extracted honey arriving freely; also some very nice comb. Honey-buyers are slow to take hold, as they are looking for low prices, and are holding back for large arrivals later on. We quote No. 1 comb white, 10; fancy comb, 11@12; extracted amber, 4; white extracted, 5@5½. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
Aug. 9. 10 Vine St., Philadelphia, Pa.

DETROIT.—White comb honey 10@12; very little dark offered; extracted white, 5@5½. Beeswax, 25@26.
Aug. 10. M. H. HUNT, Bell Branch, Mich.

CINCINNATI.—There is a fair demand for choice white comb honey at 11@13, with a good supply. There is a very good demand for extracted honey at 3½@6, according to quality. We have, perhaps, never disposed of as much honey at this time of year as we did this season. Demand is fair for beeswax at 20@25 for good to choice yellow, with a fair supply.

CHAS. F. MUTH & SON,
Aug. 10. Cincinnati, O.

FOR SALE.—A lot of good extracted clover honey in 60-lb. cans. JNO. A. THORNTON, Lima, Ills.

WANTED.—To buy quantity lots of fancy comb honey in non-drip cases. B. WALKER, Evart, Mich.

FOR SALE.—Fancy extracted in 60-lb. cans, and fancy comb (Danzy sections) mangrove honey in 30-lb. cases. Cash offers wanted, f. o. b. here.
H. PRICE WILLIAMS, Miami, Florida.

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DANIEL WURTH, Falmouth, Rush Co., Ind.

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AT THEIR PRICES—THE FINEST MADE.
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A Tested Queen and the Review for $1.50.

I have a large number of nuclei containing fine tested Italian queens of this year's rearing, and have decided to use them in helping to build up the circulation of the **Review**; hence offer a queen and the **Review** one year to *new* subscribers for only $1.50. **Review** alone, $1.00; queen alone, $1.00. If several queens are wanted, write, and the price will be made according to the number. As a rule, orders are filled by return mail, and there is never a delay of more than three or four days, and that on large orders.

W. Z. HUTCHINSON, Flint, Mich.

Honey Leaflet

Dr. C. C. Miller.

Why honey is more wholesome than cane sugar.

Honey as an article of diet; honey cooking recipes.

This leaflet is written for the benefit of consumers, and is put out at an extremely low price so that honey-producers may distribute them free to their customers. Prices: 10, 5c; 100, 20c; 500, 75c, all postpaid; 1000, 75c, carriage extra.

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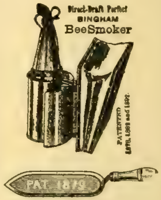
Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



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The Buffalo Convention Report will be published in the Bee Journal *in full*, right after the meeting, beginning early in September. That report alone will be worth many times the 25 cts. Send for free sample copy, anyway. Address

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO.

VOL. XXV. AUG. 15, 1897. No. 16.

STRAY STRAWS FROM DR. C. C. MILLER.

GLEANINGS looks very neat in her new suit. Easier to read too.

WIESBADEN is where the big convention of German bee-keepers will be. Wish I could be there!

ALFRED AUSTIN, England's poet laureate, is a member of the Kent Bee-keepers' Association—not an honorary member, but pays his subscription.

ANTS IN HIVES. M. Guilleminot, in *L'Apiculteur*, says he is successful in getting rid of ants by first removing what he can of their nests, then sprinkling well with finely crushed soot.

DID YOU EVER NOTICE that, in enlarging the brood-nest, the queen often lays first on the side of a fresh comb furthest from the brood-nest? I wonder why. [I never noticed it.—ED.]

TO THE QUESTION, whether it is possible and desirable to increase the length of tongue in our bees, nearly all repliers in *A. B. J.* agree as to desirability, and a large majority believe it possible.

THE BELGIAN GOVERNMENT has issued an order that all railway embankments shall be covered with honey-plants.—*Bienen-Vater.* May be that will happen here, if government runs the railroads.

BYRON WALKER is right about "even thickness of combs." The fact is, I'm so used to thinking of separators being used that I never thought of the great unevenness there might be without them. He's right, too, in thinking there may be too great economy of words in describing grades.

YOU ARE RIGHT, I think, Mr. Editor, p. 550, in thinking the bees would not have so readily capped over that honey if I had taken away all the brood-frames, leaving only full frames of honey; but there was no "putting-in of the frames of foundation in alternation," as you mention. It was frames of brood alternated with frames of honey.

IN REPLY to Mr. Craig's question, p. 573, I think fall is better than spring for sowing sweet clover, and it most surely must be sown or self-sown every two years, for, like a parsnip, it grows one year without blooming, blooms the next year, then dies root and branch. So if bloom is wanted every year, seed must be sown or self-sown every year.

PROF. COOK favors a return to the old plan of having a few bees on every farm, rather than large apiaries in the hands of specialists. —*Rural Californian.* Which may and may not be all right *if* every farmer would keep bees. But if all the specialists were killed off, would it at all increase the number of farmers who keep bees?

MANY THANKS, friend A. I., for giving fits to the electrical thieves that are worse than pickpockets, and especially to their aiders and abettors, the religious press. Don't let up on the latter till they cease to be partners in crime. [Doctor, suppose you tell them the plain truth. We will furnish you all the marked sample copies you want. Perhaps a word from you would have more weight than from A. I. R.—ED.]

THE ARGENTINE REPUBLIC, as reported by A. Michaut in *Apiculteur*, is a paradise for bee-keepers—no failures from drought or moisture (except once in 12 or 15 years grasshoppers allow a quarter crop); no foul brood or other disease; no moth; abundant harvest for three months in the vast alfalfa fields, and an average yield of 75 lbs. a colony at 3 cts. a pound, and 3½ lbs. wax at 20 cts. Perhaps Prof. Bruner will tell us about it.

SHEEP are good to keep down grass in an apiary, but they move hives on their stands more than cows or horses. [I am sure your experience is different from that of Vernon Burt and the rest of us. Whenever a horse is stung in the vicinity of our apiary, there is usually a fracas, and a lively one too. The last experience our Meg had at our home apiary was when she kicked over two hives and had a runaway generally. Say, doctor, do your sheep kick?—ED.]

REV. M. MAHIN, D. D., has observed closely, and never found bees working on strawberry-bloom worth mentioning till this year; but this year they worked as freely on it as on clover. He thinks an unusually damp and cool spring accounts for it. [Two or three years ago a few insisted that bees never work on strawberries. Others stated just as emphatically that they did. The truth of the matter is, some years bees do visit strawberry-blossoms, and some years they do not.—ED.]

GLASS COVERS for hives seem to have gone out of use at Medina; but at least two correspondents of the *British B. J.* like them after four years' trial. [Glass covers! I hardly know to what you refer unless you mean two that we used during winter, sealed down over the brood-nest, and covered with packing for experimental purposes. The result of the experiment that season seemed to show that bees did better under absorbents than under sealed covers. The glass was simply a matter of convenience.—ED.]

C. P. DADANT says, in *American Bee Journal*, "Why two Unions? Can't we lay aside all disputes and come together? I belong to both, and am willing to help both; but how much stronger we should be if we stood together as one man!" Vous avez raison, mon cher ami. [Just so; and I believe that nine-tenths of both organizations are with friend Dadant. Amalgamation is not given up by any means; and I hope the new constitution, at the next convention in Buffalo, may be so worded as to suit the most fastidious.—ED.]

SWEET CLOVER, it has been said, will drive out flies if the stalks are hung up in a house. Big bunches are hung in our honey-room, and the flies seem to enjoy roosting on it. [I do not see how sweet clover could drive flies out of the house; but I can readily imagine how the flies would like to roost on it. But why have flies in the honey-room at all? Why not have screens and screen doors? If you send one of your women-folks out to the house properly screened (house screened, not the woman), I will warrant she will bat the flies to death in very short order. I judge your women-folks by ours, for they are sure death to flies.—ED.]

HONEY is quoted by the gallon, p. 547, in the New York quotations. Wouldn't it be just as well to have nothing but pounds? [When honey is quoted by the gallon it usually means southern honey, or an inferior quality, for such honey usually sells in the South by the gallon. I believe with you that it would be better if it could always be sold by the pound, for on that plan the producer is paid just as much for thick honey as for thin. Or, to look at it in another way, a premium is put upon thick honey—the only kind that ought to be put on the market.—ED.]

I DON'T WONDER, Ernest, that you have come to the conclusion that you want all your queens clipped. So far as looks are concerned, it need make but little difference. Cut the big wing on one side, leaving the little one intact, and you'll have to look pretty closely to see that a queen is clipped. [Yes, I am thoroughly converted to your way of looking at the matter. Say, doctor, is it wrong for one to change his mind? or should he stick and hang to his originally published opinion, right or wrong? There are some people I know, and editors too, who *appear* to feel that the latter policy is the better one. As for myself, even if it is a little humiliating once in a while, I expect to right about face just as soon as I know that the other fellow is right and I wrong. I really do not mean to give anybody a rap on the head; but it would be better for bee culture if there were more who are willing to change front.—After reading the foregoing it *sounded* very "goody-goody"—a little too much so, perphaps. Can't help it. I believe in the doctrine of conversion from the error of one's ways.—ED.]

IS THE ABILITY to build comb inborn, or do the young bees learn it from the older ones? Kokevnikow, a Russian, secured a lot of young bees that could never have seen comb built, and they made a finished job of comb-building the first time trying.—*Bienen-Vater*. [Exactly. The young bees will build just as good combs as the older bees, just the same as young cats and dogs can swim as well as old cats and dogs. The puppy spaniel that I had swam just as well the first day I threw him into the water as he did on other days months afterward when he swam out into the lake for his own pleasure after blocks of wood had been thrown out for him to bring in.—ED.]

THICK TOP-BARS and ¼-inch bee-space do well as regards burr-combs; but brace-combs between top-bars are plentiful. [As a general rule, there are comparatively few burr-combs over thick top-bars; and there are practically none when the spaces between them are ¼ inch. But our friends and patrons do not seem to like to have the top-bars quite as wide as you do, and accordingly there are occasionally burr-combs as well as brace-combs. There is a great difference in colonies. We have one at our out-yard that sprinkled the burr and brace combs in pretty thickly between the sets of extracting-supers, but they are as one in five hundred. It is the exception that proves the rule.—ED.]

ALMOST SURELY, Mr. Editor, you are right in thinking your home apiary overstocked with 300 colonies and nuclei; but a comparison with the out-yard doesn't prove it, for a like comparison of my home apiary with the north apiary would prove the first overstocked, although the two are about equal. A short distance often makes a big difference. [What you say is true. During the early part of the honey-flow I was called to hive a swarm half a mile from our home yard. I then observed that our neighbor's bees, some two or three colonies, while only half a mile away, had about three times as much honey per hive as colonies of equal strength in our large home apiary. This led me to believe that two things were true: First, that the home yard was overstocked; second, that bees do not usually fly much over half a mile in quest of stores; and it is only when they can not get honey within this range that they will go further. So long as there is a little to be had near home, so long are they content with that little. But, "all the samee," I do not believe it is wise to put out-apiaries much nearer than two miles.—ED.]

FIGHTING GLUCOSE IN CHICAGO.

The Plan Proposed on Pages 554, 555, Impracticable; the Legal Status of the Question.

BY HERMAN F. MOORE.

Mr. Root:—In regard to your plan to have Mr. W. A. Selser, of Philadelphia, make analyses of samples of suspected honey, it would not be best, as we could not use his evidence here in our courts without great expense in bringing him here to testify in person. No other mode of testimony would be satisfactory. The analyses must be made by some chemist near by, or in Chicago.

One thing to be remembered is, that there would be considerable expense connected with prosecuting these honey-mixers here in Chicago. It would be the best place on earth to make such a fight if made by one of our Bee-keepers' Unions, because the best advertised; and any action here would be at once communicated to the whole world of bee-keepers in all lands.

We must remember who are our foes here in the outset. I inclose a clipping from a Chicago paper about the *Glucose Trust*. A new incorporation of the G. T. has just been made in New Jersey, with $40,000,000 capital stock. These people are pushing their business here in Chicago, as I believe $1,000,000 worth a year of their products is consumed and handled through this city in a year. They would undoubtedly fight us tooth and nail. Their first fight would be to furnish unlimited money to hire the best lawyers in Chicago to defend any one arrested for mixing honey with glucose, and to pay their fines if convicted. If the bee-keepers desire to push this matter it would be necessary to provide not less than $1000 in money at the start to pay necessary expenses. It would be necessary to *retain*, to aid in the prosecution of offenders, one of the best lawyers in Chicago—one whose name would carry prestige in the courts and before the people. To retain such a lawyer a liberal fee would be necessary.

I should like to see a decisive move made against the works (glucose) of the enemy; but it should be done in the proper manner, and with a force commensurate with the wealth and fighting qualities of the said enemy, or it had best be left alone. I should be glad to hear from Mr. York, as he is here among them, and knows the conditions as well as or better than I.

I will say, for the benefit of those who know me personally, that, though I am a lawyer, I am not in a position to represent the Bee-keepers' Union in such a prosecution, and have no thoughts of myself in the above remarks, though I should be glad to give them the benefit of any knowledge or experience I may have in the premises.

Chicago, Ill., Aug. 4.

[From your statement of the case it looks almost as if we were helpless. Although I am not a lawyer, nor the son of one, let us examine the matter a little from another point, for I feel as if we could not give it up. How will this do? Employ Mr. Selser to analyze two dozen samples of extracted honey bought in the open market in Chicago. Suppose he finds one dozen of them to be adulterated. Would not this, coming from the Union, be sufficient evidence to induce the prosecuting attorney or the food commissioners of your State to bestir themselves a little, especially if the General Manager kept on dinging at them? Why, in the name or the good State of Illinois, is it necessary for the Union or any organization made up of private persons to defray the expense of prosecution that rightly belongs to the State? Ohio has an energetic food commissioner, and I have no doubt he had a constituency back of him who prodded him up to a sense of his duty; and those of us who live in this State *know* that he has made the food-adulterators fear and tremble. He even went so far that some of our "good people" actually began to protest, and they fairly begged him to "let up" on the poor persecuted mixers. The Union must not of itself assume the expense of prosecutions; but can we not give the Illinois State Food Commissioner, or whoever that functionary is, a little "waking up"?

It is too bad that the liquor element and the food-adulterators have got matters into such shape that it is hard to secure conviction; but the good people of our land must wake up, for the other side certainly are not asleep. Glucose and whisky, and all other enemies of the human stomach, must not triumph over right. —Ed.]

* * *

GLUCOSE, AGAIN.

BY R. M'KNIGHT.

I am surprised, Mr. Editor, that you too look upon glucose as vile stuff. You say, "The article that is ordinarily used for purposes of adulteration is hardly fit to put into the stomach of a pig, let alone that of a human being." I take it that the statement used in the above paragraph covers all articles "ordinarily used for the purposes of adulteration." In this you are certainly mistaken. Whisky, I believe, is usually adulterated with water; therefore water is unfit to put into the stomach of a pig. Coffee is usually adulterated with chickory, therefore chickory is vile stuff, unfit to be used by a human being. Mustard is adulterated with flour—your logic proves flour vile stuff. The sparkling diamond is chemically identical with the somber charcoal, so it will be in order for Cecil Rhodes and other diamond kings to denounce charcoal as vile stuff, and its producers scoundrels. Now that there is a large factory at Niagara Falls for manufacturing diamonds out of charcoal, all these adulterants are, I contend, legitimate articles of commerce, and their production is neither a fraud nor a sin. The fraud consists in mixing them with articles of a higher commercial value than themselves, and selling the mixed article for what it is not. The only proof you furnish that glucose is vile stuff is that it nauseated you once while sampling honey mixed with it, and left you afflicted with "a horribly nasty taste" that clung to you for days. I have known people nauseated for days from sampling butter at a show-fair where all the butter was considered good. It is unfortunate that this article is believed to be largely used in adulterating honey in the United States. The practice is a fraud that ought to be stamped out, and I am pleased to learn that you are making progress in that direction. I believe that glucose, when properly refined, is not detrimental to health, and I am slow to believe that those who are engaged in its production are scoundrels. It is an extensive industry in your country. There is a line of steamboats running from Gladstone to this port that bring in tens of thousands of barrels of this "stuff" during the summer, and as many bags of grape sugar made from the same source. This is all through freight going to Britain and Europe. If it is used only as an adulterant the fraud must be widespread. One thing is certain—bee-keepers can not stop its production by calling it, and those engaged in producing it, ugly names. Perhaps your people have greater reason to feel sore over this matter. Honey adulteration is not practiced here to any appreciable extent. Out of several hundred samples analyzed by the Dominion chemist last year, only twelve were found to be adulterated.

Owen Sound, Can.

[In your first quotation you wholly misunderstood me. The quoted sentence standing by itself *might* admit of the interpretation that you have given it; but when placed in connection with the other sentences it will be seen to convey quite a different impression. "The article (namely, glucose) that is ordinarily used for purposes of adulteration is hardly fit to put into the stomach of a pig." I have reproduced the quotation, but have put in parenthesis the exact meaning I intended to convey. Your argument is all for naught.

You still fail to furnish one iota of proof to the effect that glucose is a legitimate article of commerce. If you will show me one legitimate use to which glucose is put, outside of its use as an adulterant, I will give you a chromo. It is possible that it is used in the manufacture of liquors; if so, it should be classed along with them.—ED.]

* * *

MARKETING HONEY.

The Problem of Candied Honey; the Policy of Replacing Candied Honey with Liquid, Condemned; Some Valuable Hints.

BY. J. A. BUCHANAN.

I believe I stated some time ago that I would have a short talk on this subject. It is one that is continually bobbing up. Articles of interest embracing many facts and some theory have been appearing in GLEANINGS for some time, especially the talks by Mr. R. C. Aikin. It is true, that bee-keepers who produce alfalfa, basswood, and other kinds which soon granulate, will ever have trouble unless a way shall be discovered to prevent candying.

We have handled immense quantities of alfalfa honey, but have given it up on account of its ready disposition to candy. Mr. Aikin's suggestion to put up the honey in small cans of 1, 3, or 5 lb. sizes, and retail or wholesale in this way, letting it candy when it may, depending on the printed instructions as a means of information and education whereby the consumer may learn to liquefy his own honey, will do with only a very few people, as I tested this very plan some years ago.

Some four or five years ago I visited grocers in different towns and cities, on the hunt for bargains in honey that had been put up this way which had stuck on their hands, and, being candied, it was not wanted, but looked upon with suspicion by both grocer and buyers. I found in one store several hundred 3-lb. cans of candied white-clover honey, and bought the lot at 5 cts. per can, and the grocer was glad to get it out of the way. This honey was labeled with plain directions for restoring to the liquid form. It is surprising how few persons there are who will read instructions in the management or use of any article.

Some of the worst abuse I ever got in my life came from retailers and customers upon finding the honey I had sold to them had candied, or "gone back to sugar," as they put it, as well as firmly believed. We now handle only such grades of honey as will not candy, are or very slow to do so.

As to the matter of taking up all jars, cans, or glasses, and replacing with freshly liquefied stock, I can think of nothing more distasteful than such everlasting foolery and waste of time; not only so, but, worst of all, this reliquefying will soon destroy both color and flavor. I have known several parties who once put their honey on the market in this way. I did so myself, but it's too puttering a business to keep up continuously.

In localities where the honey crop is not large, bee-keepers can find customers for all they produce, with little trouble, and at satisfactory prices; but the case is different where there are great quantities and no good home demand. In this case it appears to me it would be quite as well to wholesale and let it fall into the hands of those who make a business of handling honey by hunting up consumers. By the time this class pays freights, stands all losses, bears all expenses of traveling, taking orders, delivering, etc., he will find, these slow times, that his profits will all be taken at any ordinary bank, if not all, to defray expenses.

Just let every producer do his level best to sell in his home market all he produces, at the best price possible to obtain, going at the business with a determination to sell, and I am sure there will be no very large quantities find their way into the hands of city commission houses.

I have often bought bee-keepers' crops of honey and stepped into the towns right around them, and in a few days' work have doubled my money on the purchase, while they all the time claimed there was no use to try any more to sell honey in "such places;" but I'll admit the fact that not all people are salesmen.

Although we sell large quantities of honey, both comb and extracted, each season, we never sell honey to dealers, but altogether to the consumer, giving them fresh honey, and so good that they will not keep it long enough to candy.

We put up no smaller packages than one dollar's worth, as it does not pay to deliver a less quantity at the close margin at which honey may be sold these times.

It has always seemed a mystery to me how it comes, that, in nearly every case, we are able to purchase honey of the same quality from commission merchants of the large cities at a less price than we can buy direct from the producer. Perhaps bee-keepers ship to cities in the hope of getting the best prices; but after waiting long and getting anxious for returns, they advise their dealers to close out at once to the best advantage, which is sure to be to any other person's advantage more than to that of the owner of the honey.

Now let every one who can find any thing like a fair home market go to work and supply this and keep it up, which plan will be found to give, in the outcome, the best and most permanent satisfaction as well as profit.

Holliday's Cove, W. Va.

[I believe I have already said—at all events I will say it now—that Mr. Buchanan has probably sold more honey, in a retail way, and has done more in the way of developing local markets, than any other bee-keeper in the United States. He annually produces large crops of honey, and not only sells his own, but sells for a good many others.

Mr. Buchanan's experience with regard to candied honey, and replacing the same with liquid, will probably not work satisfactorily with him; but Mr. Chalon Fowls, of Oberlin, O., has worked on this plan for years, and considers it profitable.

I was struck particularly with one paragraph where Mr. Buchanan says he has often bought bee-keepers' crops of honey, and sold it right around their homes, and doubled his money, while they, the bee-keepers, had all along claimed that there was no use of trying to sell honey in their markets. Granting that Mr. Buchanan is a natural salesman, and knows the art of selling, this does not explain how he should be able to double on his money, unless, at least, those bee-keepers who complain of their home markets have made no effort to develop them. Perhaps they are not read up—or at least have not read the series of valuable articles that have been running in GLEANINGS and the other bee-journals ef late. Understand, I do not question Mr. B.'s right to double on his money. It is his privilege and right, if the other fellows won't post up and do something.

Mr. Buchanan calls attention to another significant fact; namely, that in nearly every case he has been able to buy honey of a given quality from commission merchants in the large cities *cheaper* than he could buy the same honey direct from the *producer*. This is too true. It can be explained only on the ground that so much honey is sent to the cities that it gluts the markets; and the consequence is, the bee-keeper is glad to get any thing if he can only get *something*. Too often he is deceived by quotations that are above the market. Big promises for immediate returns at glittering figures allure him. Why will not bee-keepers learn to be careful? Nine-tenths of the producers know the art of *securing* honey; but I almost believe that nine-tenths of them do not know the art of *selling*. Why, we are to-day having the finest qualities of comb and extracted honey offered to us at prices that are ridiculously low. Sometimes we buy, and sometimes we do not. We very much dislike to be lugged into the "general swim" with those who are trying to buy closely, at the expense of the hard-working bee-keeper. It is too bad, but need not be if producers would not be so fast to lump their honey off in large lots for the sake of getting a "big pile" all in one lump.—ED.]

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GOOD CROPS AND GOOD PRICES.

The Advantage of Selling around Home.

BY DAN WHITE.

I notice in last issue, July 15, comments about our large crop of honey. Some are afraid of a glut in the market, ruinous prices, etc. Now, if I can say a word of encouragement I will gladly do so. My this season's crop is about 7000 pounds, mostly extracted, and I expect to market every pound of it at fair prices. You know good help to work among bees is hard to find; consequently about four weeks' good hard labor by myself alone has secured this honey. I have no one to settle with for labor but myself. Now, is it good policy for me to sit down and wait for people to come and buy my honey, or put it in large packages and throw it on the market? I believe I can now well afford to do some hustling around, and sell this honey. Don't you see I shall do this myself? and when I get through, my expense account will not eat up a large share of my honey crop. I can now report one day's labor, 600 lbs. honey sold, nearly all for cash, and in the mean time I have found where I can place about 600 lbs. more just by driving around with the honey.

Let me give my price: 8 cts. per pound, in a small way; $7.00 for 100 lbs. I have already filled and taken several orders for 100 lbs. in a family—some of them farmers too. Don't be afraid to go out among the farmers, and especially the laborers in villages and cities. I have told you before that four families out of five hardly know what honey is. Now, sir, we have lots of honey, and let's hunt these people out and tickle their palates with some good honey. We shall not only get rid of this crop, but we are making a market for future crops of honey.

I could hardly give the time to say what little I have. I will report later how I get along. But I will add this much, and close: I have had a host of help around me picking, marketing, and looking after 8 acres of small fruit. When I get settled up, and expenses paid, I believe I shall take off my hat and give three cheers for the bees.

New London, O., July 20.

[Dan White is a "hustler;" and if you could see him once as I have, and imbibe a little of his enthusiasm — well, I think you could sell honey too. Our hustling friend asks a very pertinent question: Is it good policy for the bee-keeper to sit down and wait for people to come and buy his honey, or put it into large packages and throw it on the market? or shall he sell it himself around home, and get good prices? Just think of this a good long while, brother bee-keepers, and then ponder a moment on some of the things that Mr. Buchanan has said in the article just preceding.—Ed.]

DEVELOPING HOME MARKETS.

Putting out a Fine Article, and Having it Stand on its own Merits.

BY B. F. ONDERDONK.

Mr. Root:—I notice an uneasiness in the minds of some of the correspondents of the various bee-journals as to what they will do with the large crop of honey in view this year. I would say to all, *make your own market.*

In 1895 I commenced with three colonies, and got a surplus of 89 finished sections, retaining imperfect ones for my own use. As my duties call me to the city every day I do all my apiarian work before 7 A. M., and after 6 P. M., working as early as 4:30 and up to 10 P. M. The first case, a 12-lb. section one, I fixed up, using wider glass than usual, 3¾ in., to make a good display, and carried it into the house, and said to my wife, "Show this to the grocer when he calls for orders."

She asked him, "Do you sell honey?"

"Well, we always have it, but there is little sale."

"Is it as fine as this?"

"My! isn't that nice? What we have looks as though the mice had gnawed it. If that is for sale I'll take it and see what can be done with it."

This was in October. He sold my entire surplus; and when that was exhausted he sold all of his old stock—an appetite was created. In 1896 my surplus of 312 lbs. was gone by January.

The other grocer with whom I also deal wouldn't touch it. "Never sold any comb honey." This summer I told him he ought to sell honey, to be up with his competitor. "Well, I'll think about it."

The first honey I took off June 22, and sent him a case with the message, "If you don't sell it I'll take it back." He has now his fourth dozen. The other man has it also on sale. I have taken off 385 sections to date. Of course, among them are some nice and white, but only three-fourths full, hardly marketable (of course, all sections are thoroughly cleaned); and as we have a fish-peddler who sells fruits and vegetables as well, I said: "Here, you can surely sell honey."

"Oh! I don't know."

"Well, now, these you can have at 10 cents; sell them for 15 cents; or two for a quarter; these No. 1 are 13 cts.; fancy 15 cts., to the grocers."

This peddler's route covers a circuit of five miles from the village, and is run three days. He sold out his case (12 sections) each day, and had not enough to go round. He has engaged all my incomplete sections. He got 15 cts. each, and a nice profit, $1.80.

In the spring a neighbor living a mile away came to me and asked me if I would instruct him in the care of bees, as he knew nothing about them, and had a chance to purchase eight colonies. I have informed him on all points, and he is a credit to my teaching, making a success.

Some of my friends expressed surprise at my willingness to encourage competition as they called it. I told them that a successful competitor would increase the field of demand; that honey would be introduced to hundreds of families who would not otherwise know of it; but that I felt it my duty to benefit my fellow-man, even though I might suffer loss.

Mountain View, N. J.

SECTION-PRESSES AND THE RIETSCHE PRESS, AGAIN.

The Comparative Merits of the Daisy, Hubbard, and the Rietsche Combined Machine Discussed.

BY F. L. THOMPSON.

Some time ago Alois Alphonsus, of Vienna, stated that foundation could be made as thin with the Rietsche press as with a mill. He is a professional bee-keeper of good standing. That was the basis of my "assumption" of the possibility of making eight L. sheets to the pound with the press. I did not entirely believe that statement, but thought he was a little mistaken; yet it strongly indicated that foundation could be made pretty thin, for surely they can turn out 11 feet to the pound, anyhow, in Europe, on the mills there in use. At any rate, that statement, and your experience of three L. sheets to the pound, seem utterly irreconcilable. Though I have never seen a Rietsche press, what I read about it makes me lingeringly suspect that your experience with it is not identical with that of foreign bee-keepers. Did you use the honey and alcohol lubricant? The press is frequently referred to in high terms by disinterested parties in a number of foreign bee-papers which I receive. I hope to learn before long just how thin the *improved* machine makes foundation. I think it would be well to find out all about this; for until then I, for one, and no doubt others, will feel uneasy, and be tempted to send our hard-earned dollars across the ocean for something to save money with.

Yes, I did think you were favoring the supply-dealer at the expense of the bee-keeper, but supposed it was because you were under the false impression that you were favoring both. One may be mistaken in this as in other ways—in fact, more readily, for the consideration of unconscious bias comes in.

So far I am not certain that I may not have got the worst of it; but now for the next round — look out! You say you have "carefully tested" every combined section-machine sent you. What does this mean? A machine *might* be carefully tested in twenty minutes, and a verdict given. But in the case of any machine depending partly for its speed on the way it is handled, a short test is no test at all, unless its defects are quite obvious. Otherwise no machine you test is on equal terms with the Daisy. Not less than five thousand sections should be put up, and ten thousand would be better. The operator must learn to finger it as an expert does a piano. This requires time, and lots of it; but I see no other way to do. Piano-fingering is exceedingly awkward work for a long time; but, when once learned, the motions required are as elegant and effective as they formerly seemed awkward and unnatural.

I have not tested the Daisy — not because I do not want to, but because I have not time at present, and have not a suitable lamp. But I will leave it to you whether there are not some things I can say about it, as well as the Hubbard, which I have not worked either. (I have used, besides the Rauchfuss, the Parker and the Clark machines, and a treadle press called the Beeson.) My objection to all separate machines is that, in folding, certain motions are gone through with that have to be done over again when the foundation is fastened. If you could combine the Daisy and the Hubbard, wouldn't you do it? But, this idea is "theoretical." Not so. The other day I made repeated experiments with lots of twenty sections each on my machine, some previously folded, and some not, to ascertain how much extra time the folding took when both operations were performed together. One lot, already folded, was supplied with top sheets at a rate which, if continued, would be 450 an hour. Another was folded and supplied with top sheets at the rate of 436 an hour — a very trifling difference which leaves the Hubbard out of sight, even at the rate of 500 in 15 minutes. In another case, in which both top sheets and bottom starters were used, one lot with and one without folding at the same time, *each* lot was done in 4½ minutes (or 266 an hour)—no difference at all. (By the way, what is the record of the Daisy in putting in both top sheets and bottom starters?) I may mention here that I made several trials of 20 sections each on the folding part alone, out of curiosity. The average was 20 in 65 seconds—a rate of 1000 in 54 minutes. An expert might equal the Hubbard. But, of course, there would be no object in folding separately. I mention this simply to show that no time is lost by the method of folding employed.

In fastening bottom starters only, in previously folded sections, I reached the rate of 490 an hour. Small starters appear to be handled a trifle easier than full sheets. When this rate, with my experience (at that time), in putting up only 5000 sections on this machine is compared with your rate of 500 an hour, and an experience of hundreds of thousands, probably, on the Daisy, I don't think there can be much doubt as to the conclusion to be drawn concerning the foundation-fastening portion of the Rauchfuss machine; and when you come to add the 15 minutes previously required to fold those 500 on the Hubbard, and then compare the total result with the fact that the combined machine adds less than *three* minutes to its separate record to accomplish the same result, it looks as though inexperience with the combined machine actually did better work than experience with the separate ones.

But I hear some one say, "Oh! if you are going to compare your *spurts* with the ordinary records of others." To this I calmly reply, Consider the piano again. A beginner of, say, 400 hours' practice may spurt all he pleases; but he can not run a scale, nor hop around among the sixty-fourth notes, nor execute a trill, at a quarter of the rate in which an expert does it, and the latter will carry on a conversation at the same time. In other words, when speed depends on strength the inexperienced may gain by spurting, but not when it depends on dexterity. Of this I became painfully aware when, in making the "spurts," my fingers boggled and hit the corner of the press more, it seemed, than they did before.

As to quality, I grant the excellence of the toggle-joint in saving power, but contend that sufficient power for the purpose can be saved in other ways. The Rauchfuss machine saves power in two ways; first, by a treadle, by means of which the same bodily exertion with the foot applies greater force than with the hand; second, by a lever in the machine itself. The power is at one end, the fulcrum at the other, and the pressure is applied about a third of the distance from the fulcrum to the power. If any person were inclined to criticise the resulting exertion required, he could do so without touching on the principles of the machine. It would only be necessary to lessen the distance from the fulcrum to the point of pressure. But I do not know that there would be any object in doing this. As it is, the exertion is trifling (on properly dovetailed sections), and, what is more to the purpose, the work is perfect, so I do not think the Hubbard would be preferred on account of superiority in results.

Passing to the quality of the work done in fastening foundation, I call your attention to Mr. Hutchinson's statement that he has met with better success in fastening flat-bottom foundation by pressure than with the heated-plate machines. I assume that, among the latter, he includes the Daisy; but he does not include the Rauchfuss, as he has not tried it. Somnambulist, too, says this is his (or her) last year with the heated plate. Hence, without having used it I may infer there is some reason for thinking the work of the Daisy is not perfect; for, although neither of them mentions it, other heated-plate machines are not common. Now, unless I am greatly mistaken, flat-bottom foundation was the kind chiefly or exclusively used when the Rauchfuss machine was being constructed and experimented with. At any rate, I know by my own experience with flat-bottom foundation that the machine will fasten it so it will tear sooner than peel off. This looks like superiority to the Daisy. The reason is, I suppose, the speed with which the foundation reaches the wood after leaving the heated plate. The construction of this machine is such that if, for a guess, the starter in the Daisy drops in $\frac{1}{50}$ of a second, in the Rauchfuss it must drop in about $\frac{1}{500}$ of a second. The heated wax has no time to begin cooling before it has gripped the fibers of the wood. By sliding the foot off the end of the treadle, not lifting it, the spring gets in its work like a flash, and meanwhile the fingers of *both* hands exert on the starter a downward pressure which reaches its maximum at just the proper instant, since, by practice, the action of the foot becomes automatic. This speed renders entirely unnecessary any surplus of melted wax, such as I have seen accumulated on a lamp used in the Daisy. A touch, and it is done, when the lamp is hot enough; and the hotter the better. Thus foundation is saved.

A mere inspection of the machine will convince any one that its work can not be inferior to that of the Daisy, for all the good points of the latter are retained; and, for the reasons mentioned, I don't think it much of an assumption to infer it is superior, even if I have not tried the Daisy.

I ought to add that I find it better, in folding sections with the Rauchfuss machine, to give a sudden *punch* to the treadle, instead of a simple pressure. By so doing it never fails to drive the locked corners as tight as they can possibly be, with but slight exertion.

If you are going to test the machine, I advise fastening the wire which connects the treadle with the lever to that one of the two holes in the treadle which is nearest the center. This allows the foot to slide off the end of the treadle when releasing it. It is only by so doing that the full play of the spring is obtained. Also be careful not to get too many fingers in the section. The forefinger and thumb of each hand are sufficient. Press the foundation only *down*, not in any other direction. The two forefingers should rest on the top edge of the foundation. When holding the section in position for folding, it is not necessary to bring the dovetails any nearer together than to bring them just inside the jaw. The machine does the rest, providing the upper and right-hand portions of the section *are pressed against the back of the machine*, not toward each other. This is one way in which the machine saves time. Those accustomed to the Daisy are very awkward with this machine at first.

Montrose, Colo., July 20.

[I am willing to admit that the Rietsche press may have achieved in Europe better results than we have been able to secure from our press of the same make; but, taking every thing into consideration, your position is a little lame by reason of the fact that you have never tried the Rietsche yourself. But the fact is still significant that the manufacturer of the machine we had, at least, did not claim that it would make more than five and one-half sheets to the pound. Granted it could make eight on their improved machine, I do not see how it could be possible for it to compete with the foundation bought in the open market, at present prices, for the reason that I do not believe the average bee-keeper is skillful and expert enough to reach a speed that would warrant him in trying to turn out an inferior article at home, to say nothing of messing things up generally.

Granting all you say with regard to the difference between trained fingers and fingers new to the work, there still remains the fact that you have not tested, as you say, either the Daisy or the Hubbard machine. In order to form a correct estimate one should be reasonably familiar with both the combined Rauchfuss and the two machines that seem now about to enter the contest. As I have never tested the Rauchfuss I will not discuss the relative merits of the two classes of machines at this time, because a Rauchfuss is already on the way, and ere long I hope to be able to make a report on it. In the mean time, permit me to say that I am inclined to believe it is a good machine. Yes, I will go further and say it is possible it may do more rapid work than the two separate machines we have used. I hope it may. When it arrives I shall be interested in seeing it have a most thorough and careful test; and if it is all that you seem to think it is, we shall be very glad to enter into some sort of arrangement whereby we can supply it to our general trade. We Medinaites are always looking for something a little better than we already have; and when we find it we are glad to place it before our customers.—Ed.]

OCCURRING THOUGHTS.

BY J. W. SOUTHWOOD.

The lateral moving of the self-spacing Hoffman brood-frames when hung on the new tin rabbets is so easily and quickly done, and the frames at the same time so nicely adjusted, that they are worthy of much merit as time-savers. Just think of moving all the frames from either side, and adjusting them at the same time, compared with the manipulations of the old-style frame.

Of course, it is more work for a busy and tired editor; but I say, give us footnotes. Often, when busy, I read them first, to see if I desire to read the article. They are full of thought, broad in remembrance of like things or sayings, yet condensed and right to the point. Continue to give us footnotes.

I think sometimes we bee-keepers are too hasty in coming to conclusions, and thus mistake the exceptional for the general habit, trait, or characteristic, then hasten to give the public our mistakes. One or two observations or experiments are not enough.

I may be wrong, but sometimes I wonder if it would be possible to have some queens and comb of *Apis dorsata* shipped over to some Southern State, the queens clipped, and introduced into some Italian colonies, and the combs, containing drone and worker cells, inserted ; and, when drones are produced, endeavor to mate with Italian queens.

I know we can not all arrange our articles as well as W. Z. Hutchinson and the editor ; but we can exercise care and thought. We sometimes mention things that are not interesting. That able writer, in speaking of measuring combs which the bees spaced and built as they chose, said he measured some of the combs of his father's box hives in the barn some 27 years ago. It is of no interest to know whose hives the combs were in, nor whether they were box hives or gums, nor when it was, nor where they were. The points of interest are the thickness of the combs and the distance from center to center.

The basswood bloom was not as plentiful as usual, but was sufficient to give a good supply of nectar ; but the extremely hot and dry weather brought out the bloom nearly all at the same time, and almost dried the bloom as soon as out; and if bees worked on it any it was early, as I was under small trees at different times and could neither see nor hear a bee at work. White clover is abundant. It did not yield well at first, but is yielding well now.

[*Apis dorsata* could not, I think, be crossed with *Apis mellifica*, another species.—ED.]

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NOTES BY THE WAY.

BY J. T. CALVERT.

After crossing the Rocky Mountains, so full of wonderful and enchanting scenes, their lofty peaks covered with perpetual snows, and where the pure water of the mountain streamlet, laughing and dancing on its way down over the rocks, ever increasing till it becomes a mighty stream, we come to the plains of Western Colorado, where, under the influence of irrigation, great transformations are taking place. Fruits in great abundance and variety are produced. It is estimated that there will be several hundred carloads shipped from Grand Junction this year. The honey industry is also flourishing here, and this year's crop is estimated at six carloads for shipment from this one station. This is produced from alfalfa, and is of excellent quality.

In our short stop of an hour here I hunted up The Abbey Hardy Co., commission dealers, who supply the larger portion of bee-keepers in this vicinity. They also supply fruit-men, and are large shippers of fruit and honey. From the number of young orchards which we passed, it would appear that only a beginning had been made in fruit-growing in this valley.

On arising the next morning we found ourselves in the charming Utah Valley, still surrounded by the snow-clad hills. The neat and comfortable homes, surrounded with fruit and farm products in great adundance and variety, betokened the thrift of these people.

We stopped for two days in Salt Lake City. This is a charming city in many ways. The streets are all laid out very wide (110 feet), about twice as wide as ordinary streets. All the poles for telegraph, telephone, and electric-light wires, etc., are in the center of the street, and on either side of these the street-car tracks, leaving a very wide space for driving, and an unusually wide walk. In the gutter, between the walk and the street, on both sides of almost every street, is a beautiful stream of clear spring water from the mountains. This may be turned into the gardens by side runs across the walk, making irrigation very easy and convenient. All around the city are the snow-clad mountains rising several thousand feet. From Fort Douglas, just outside the city limits, on the foot-hills to the east, a splendid view of the city and valley beyond is had — Salt Lake itself spreading out on the western horizon 25 to 30 miles distant. The water of this lake is so heavy with salt that one can not sink in it, but will float with head and hands and feet all above water. I know this is so, for I tried it myself. The water is so very strong that one is in danger of strangling if he allows his head to get under water. No matter how weary you may be, you will find here that your feet are so light that it is difficult to get them under you again after you have allowed them to come to the surface.

While in Salt Lake I visited at the home of John H. Back, our agent handling bee-keepers' supplies at this point. From him I learned that there had been a heavy loss of bees in Utah the past winter, many having allowed their bees to starve for lack of attention. The prospect for a honey crop was good with those who had given their bees proper care and attention. The principal sources of honey here are alfalfa, and sweet clover, which grows in abundance in most of the waste places.

I was not fortunate enough to meet any other bee-keepers here, although I learned afterward that one or two had tried to find me, and failed.

The Christian Endeavorers from the East, journeying to the Golden Gate, spent Sunday here, and held what was called an inter-mountain rally. There were some 50 special trains, each bearing from 300 to 500 people, who stopped here for rest. We were royally entertained, and no doubt left behind us a lasting impression.

Leaving here early Monday morning we passed on through Ogden and across the great alkali plains of Utah and Nevada, reaching Reno on Tuesday morning. Here I spent a day visiting the bee-keepers who, in past years, had shipped us such nice alfalfa honey. I found here the prospects for a honey crop the poorest they have had in years. While they should have been taking their first and best honey from the first crop of alfalfa, the bees were scarcely making a living, while the first crop of hay was being cut earlier than usual on account of two obnoxious weeds that were becoming a great pest, requiring the cutting of the alfalfa earlier to prevent the weeds going to seed.

I found that perhaps the most progressive bee-keeper in the vicinity of Reno was a woman, Mrs. Sherman. I spent two or three pleasant hours in her home hearing her tell her experience, which was usually one of trial, and dearly bought. I visited her shop, where she and her daughters make the necessary preparations, even to making their own foundation. She is so careful in the grading and packing of her honey that she has always been able to sell it at a good price, thus reaping the reward of her unremitting toil and careful management. I found two others of the principal bee-keepers — Mr. Ball and Mr. McCart—away from home. I hired a bicycle and went out into the country a few miles, and had a short visit with Mr. Cooper and Mr. A. C. Hash.

In this section they have rain during only two or three months in winter, and they depend upon irrigation for most of the beautiful vegetation and field crops of the valley, through which flows the Truckee River down to the arid plains, where what is left of it sinks out of sight.

As I pass over these immense plains of barren waste, yielding nothing for mankind, and note what may be accomplished by the water stored up and distributed in sufficient quantities at the proper time, making the desert blossom as the rose, and produce all manner of fruits and vegetation for the blessing of man, and remember that, for most of this country, water falls during the year in sufficient quantities, if stored up and utilized at the right time, to make all this region productive, I think of Jesus' words to the woman at the well: "He that drinketh of the water that I shall give him shall never thirst, but they shall be in him a well of living water, springing up unto everlasting life." The fountains of God's grace are sufficient to bring joy and peace in abundance to all mankind. They only await the co-operation of man and the intelligent application of his truth to our lives—not in an avalanche once a year during the winter revival season, but the daily streams with gentle flow and subtle power, divided and subdivided till it reaches every act in the daily life of every living creature. If in the distribution of water through the irrigation-ditches any portion is omitted, the vegetation there soon withers and dies. So with any life that is not constantly supplied from the fountain of God's grace.

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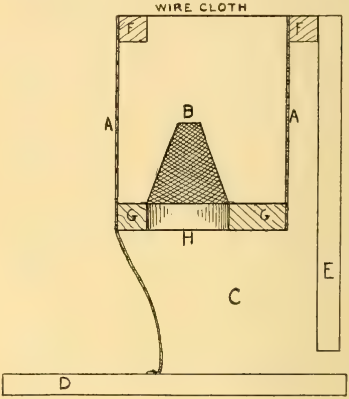
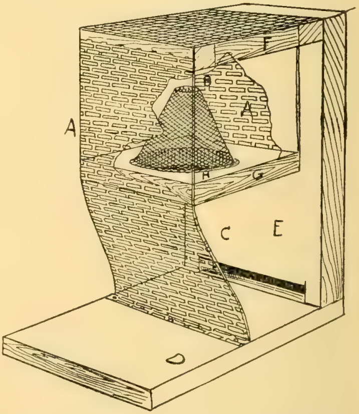
IMPROVEMENT IN DRONE AND QUEEN TRAPS.

BY ADRIAN GETAZ.

In using queen-traps I have often found them too slow in their work. What I mean by this is that, before entering the cones, the drones remain too long below, trying every hole in the zinc before they go up. The same inconvenience is found with the queen at swarming-time. During the excitement the queen will run to and fro over the zinc, fail to find the cones before the swarm is all out, and finally go back into the brood-nest.





In trying to improve the trap I find that the best way is to use a piece of wire netting instead of a tin slide to cover the trap. The light attracts the drones and queens, and to a great extent the workers also, and they go up at once. In such a construction it is necessary to have the front of the upper compartment made with bee-zinc so as to permit the workers to go out. The accompanying figure shows the details.

Knoxville, Tenn.

[Your improvement on the Alley trap, I feel sure, is a good one. Quite by accident the artist has suggested in his drawing another improvement; namely, allowing a large amount of zinc surface just in front of the entrance, as at C. The ordinary Alley traps have too few perforations through which the bees pass back and forth into the hive, to allow of proper ventilation, and probably for next season, at least, we shall modify the trap somewhat on the line suggested in your letter, leaving at the same time a large amount of perforated-zinc surface so that, during the height of the honey-flow, the bees may not suffer from want of sufficient ventilation. If the entrance is too contracted, or at all obstructed by perforated zinc, the heat inside of the hive is apt to be such that the super will be deserted, and the bees will be clustered out in front; and those bees that cluster outside cluster over and about the entrance so as to make the opening much smaller, and thus at the same time considerably aggravate the difficulty.—ED.]

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THE NEW UNION.

A Movement on Foot to Kidnap it; a Note of Warning.

BY DR. A. B. MASON.

Editor Gleanings:—I've just read Mr. Herman F. Moore's article on page 554, in regard to the pure-food laws of Illinois, and it occurs to me that the new Union is being the means of getting some of our eyes open. Like you, I presume a goodly number of honey-producers, as well as others, have been thinking that the work of the U. S. B. K. U. would be in securing pure-food legislation; but Mr. Dadant's ideas were first-class; and he, being one of the Board of Directors of the Union, I thought we might soon hear that work had been begun by the Board along the lines he suggested; but here comes our old (or, rather, *young*) friend Mr. Moore, formerly of Ohio, but now an attorney in Chicago, and he gives us the *law* of Illinois on pure food, or, rather, the adulteration of pure food. It is as good a law as could be asked for, unless a pure-food commissioner would make it more valuable, and I doubt not we shall hear that the Board of Directors have begun work along the line proposed by the constitution, in looking after the adulterators of and dealers in adulterated honey.

Mr. Moore's article is very timely, and shows his interest in this work; and I hope it will be the means of starting the Union on its mission. I'm wondering if it would not be a good plan for General Manager Secor to get some one in each State in the Union to look up the law on this matter as Mr. Moore has so thoughtfully and kindly done. Perhaps some bee-keeping attorney in each State will follow Mr. Moore's example, and give us or the General Manager the law on the subject. There need be no great expense in learning just what each State has on this subject, and no very great expense in having such laws enforced, for they provide for their execution at the State's expense; but the Union can see to it that some one "starts the ball rolling."

It may be well to have some samples of suspected honey purchased and analyzed, as you suggest, and begin the good work right in "bad Chicago;" and with Mr. Moore, Dr. Peiro, Dr. Miller, Mr. York, and a goodly number of other members of the Union right on the ground, we may look for gratifying results being accomplished, and without making a very big demand on that $3800 income of the Union, which Skylark, in one of his "flights," predicts will be "overleaped" this year.

While I think of it, Mr. Editor, isn't Skylark an active member of the Ananias family? No person by the name of *Skylark* has sent me "two dollars and fifty cents" for membership in the U. S. B. K. U. The man who sent in that "two dollars and fifty cents" has got a good straight honest name, and not a word about "Skylark"-ing in it. I might say that each bulldog that sits on the "coffers" that Skylark refers to has a collar around his neck with the name of the State he represents on it, and those bulldogs are so fed as to develop the most intense bulldog nature; and woe betide any non-union person who may attempt to interfere with the deposit each so faithfully guards.

I have not thought of your suggestions enough to say what will be the best course to pursue; but I am sure that our Board of Directors are abundantly qualified to handle the matter, and I hope they will *at once* proceed to business, and the Board may draw on my Illinois coffer to the full amount of any expense they may incur; and if there doesn't happen to be enough in that coffer I'll open up others to honor their drafts.

As I have said before, every honey-producer, every lover of honey, and every dealer in honey, ought to help on the good work by sending a dollar to General Manager Secor or the Secretary, and not be selfishly reaping the benefits of other people's investments. If only a small portion of such should respond to this suggestion I might have to enlarge those "coffers," and feed the "bulldogs" a little more heavily.

I'm sure Mr. Moore's article will cause a thrill of joy in every member and friend of the Union, and I know I shall work with renewed pleasure for the accomplishment of the objects for which it was organized, for their accomplishment seems nearer in sight.

While having some business correspondence recently with A. B. Williams & Co., of Cleveland, O., dealers in honey, I referred to our Union and its objects, and stated, as above, who ought to belong to it. The next mail brought a request for information in regard to the Union; and the next day, after getting the information, their dollar for membership in the Union lay safely in my Ohio "coffer."

Nearly every day I am receiving a membership fee, and some days several. On the 18th of last May I received 24 names and $24 from Mr. J. Webster Johnson, of Arizona, Secretary of the Salt River Valley Bee-keepers' Association, making 24 members; and another day I received 7 names and $7.00 from J. P. West, of Minnesota, making all members of the Union; and I presume General Manager Secor is being made equally happy in receiving names and dollars for the Union.

Congratulations and good wishes for the "kid," and offers of more money if needed, frequently accompany remittances. One bee-keeper, in sending his membership fee, says, "I'm a poor man; but if you want more money, call on me and I'll help all I can;" and others come with offers of more money if needed. If each one whose interest is involved in the success of the Union's work would send his name and dollar there would be no lack of funds.

I got a letter from a Canadian this week that kind o' riles me. He says: "I am pleased to see that you are making every effort to have a grand convention at Buffalo, N. Y. From what I can judge you will succeed. I have every reason to believe that there will be a good attendance of Canadians as well." . . . Here's what makes me "bile." "I may give you a hint—I expect to see as many Canadian as United States bee-keepers at the convention; and if there are, we may vote it a Canadian instead of a United States organization. Ha, ha!"

Now, Mr. Editor, isn't that "galling"? We've licked "Johnny Bull" twice, and now some of his offspring propose to drop in on us unawares at Buffalo, and "lick" us out of our boots on our own soil. "To arms! to arms!" Turn out, Yankee bee-keepers, and meet the enemy (?) and they'll be ours. Stir up your readers Mr. Editor, let us not be vanquished.

I've already written to the *Bee-keepers' Review* to give the note of warning, and shall write the editor of the *American Bee Journal* in the same strain, and would also send to the *American Bee-keeper*, *The Progressive Bee-keeper*, *The Busy Bee*, and the *Southland Queen*, were it not too late. Oh that I had received this hint before! The Canucks have imbibed some of our Yankee vim, and they may give us a good "tussle;" but let us not get left. Transportation is cheap, so let every one who can be on hand with arms and rations for a three-days' tussle. It would be too bad to let the Canadians kidnap our healthy growing "kid."

I shall take Mrs. M. with me to take care of me, and no one but a coward will attack a woman, and the Canadians are not cowards; so I am safe; but woe betide those without women to hide behind.

[No, no; we can't afford to let the Canadians kidnap our growing kid. My better half expects to be present. Yes, bring on the women. We may need their help.—ED.]

BRODBECK'S "ONE THING LACKING" IN THE CONSTITUTION OF THE NEW UNION.

[After the above was in type we received the following additional matter.—ED.]

I have just received a letter from Mr. Geo. W. Brodbeck, of Los Angeles, Cal., in which he says, "If time and circumstances permit I may forward a few suggestions in connection with a revision of the constitution of the U. S. B. K. U. The one mistake made at Lincoln was in not making the U. S. B. K. U. a distinctive national organization; for if this had taken place the old Union would have been forced to surrender and you would have enlisted the interest of several thousand bee-keepers in the United States who now stand aloof. It is an evident fact, that two like organizations can not exist; and, if I am not mistaken, unless there is a compromise between the two the B. K. U. will revise their work and follow in the line of the U. S., and the result then will be a mere question of time. I should like to see *one* good organization do all the work required; and, as a member of both, I am willing to aid, as far as lies in my power, to accomplish this purpose.

"Controversies, as a rule, act as a wedge when opposite results are desired; but a settled purpose to compromise differences ends in brotherly love. I have no desire, doctor, to pose as a critic, as my sole interest is in seeing one grand union of bee-keepers in the United States."

I don't remember that I have anywhere referred to the spirit that actuated the formation of the constitution of the U. S. B. K. U.; but I want to say that a desire to serve the interests of honey producers, consumers, and dealers, was at the bottom of the whole matter; no selfish interest happened into it. You know, and so does every other reader of your journal who has read my articles, and what I have said at conventions, that I was a firm opponent to the amalgamation of the N. B. K. U. and the N. A. B. K. A. *unless* it could be accomplished without in the least interfereing with the efficient work of the National Bee-Keepers' Union." I have repeated this many times, and I *know* that you and those engaged in trying to bring about the union of the two, and enlarging the scope of their usefulness to the pursuit, thought just as I did about the matter.

After a good deal of correspondence by the members of the Amalgamation Committee, and all hope of accomdlishing any thing had fled, I drafted what, after some alterations, is now the Constitution of the U. S. B. K. U. My original draft was submitted to several leading bee-keepers for criticism; and after all this was done you were so well pleased with it that, without consulting any one, you had it put in type and printed, and sent me fifty copies to do with as I saw fit, and I sent about twenty of them to our best-known bee-keepers for criticism and suggestions, such as Mr. Newman, Prof. Cook, Mr. Brodbeck, Mr. Secor, Dr. Miller, Mr. Hutchinson, Hon. R. L. Taylor, R. F. Holterman, Mr. Doolittle, Mr. Elwood, and Mr. Manum. Nearly all replied. Most were satisfied with it as it was. Mr. Newman and Prof. Cook each made one suggestion, if I remember correctly.

The whole matter, with all the suggestions offered, was submitted to the Lincoln convention, and by it referred to a committee of three, all members of the National Bee-keepers' Union, to be put in shape for its adoption or rejection by the convention. The committee met in Dr. Miller's room at the hotel (although he was not a member of the committee and went over the whole matter carefully. They then invited about fifteen other members of the convention, among whom, if my memory serves me, were Dr. Miller, Rev. E. T. Abbott; L. D. Stilson and E. Whitcomb, of Nebraska; E. Kretchmer and Hon. E. Secor, of Iowa, and A. I. Root; and I believe all sanctioned the work of the committee. I may say here that most of those invited to meet the committee were then, and are now members of the National Bee-keepers' Union, three of them members of its Advisory Board.

No material change of the constitution as it went to the hands of the committee was made by them, and none by those invited to meet with the committee. It was then submitted to the convention, and gone over and discussed and adopted section by section, only two changes being made, I believe.

Being opposed to amalgamation, except as above indicated, I took *special pains*, in drafting a constitution, to have every thing so shaped as to favor and forward the interest of the National Union, going so far as to make the officers of the old Union the Board of Directors of the U. S. B. K. U., and leaving the funds, as before, entirely in the hands of and at the disposal of those officers. I *know* that the aim was to make it as nearly in intent as possible to the old Union's constitution, some going so far as to suggest that it be called "National," with the expectation that the old Union would adopt the new constitution.

In the light of these facts, what more could have been done than was done? Of course, we don't know what Mr. Brodbeck means by "the one mistake made at Lincoln," nor how it could have been made more "distinctly national." Unlike Mr. Brodbeck, there are those who think the constitution is "incomplete, and full of incongruities." I myself must admit that it is incomplete, but that is owing to the effort made to make it as nearly as possible in line with the old constitution.

Perhaps "the B. K. U. will revise its work and follow in the line of the U. S." Some of us, member of the old Union, tried to have the "work revised," but failed; and the result was the organizing of the U. S. B. K. U. If the N. B. K. U. "follows in the line of the U. S., I believe it will be following a vigorous young leader.

Why didn't Mr. Brodbeck tell us how to avoid making the Lincoln mistake? Perhaps he'll tell us how to correct it at Buffalo. Those interested in the success of the U. S. B. K. U., like Mr. Brodbeck, "would like to see *one* good organization, . . ." and are "willing to aid as far as lies in their power to accomplish this purpose," and *have* not and *will* not entertain any other feeling than "brotherly love," for their sole purpose is to have "one grand union of bee-keepers in the United States," and they propose to work in that direction till that desire is accomplished.

It is proposed by several to propose changes to the constitution at Buffalo, so as to make it as complete as possible; but all proposed changes will have to be submitted to every member for their adoption or rejection, and this can not be done at Buffalo. From my correspondence I gather that the feeling is general that the coming convention is to be a large and good one, members in California, Arkansas, Tennessee, South Carolina, Rhode Island, Massachusetts, and Vermont, and many of the States between these, signifying their intention of being present.

Sta. B, Toledo, O., Aug. 6.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE. BORODINO. N.Y.

FEEDING BACK EXTRACTED HONEY.

Question.—I have read somewhere that, if I were to run an apiary for extracted honey, during the harvest of white honey, and feed the same back to the bees to put into sections, said extracted honey would sell in the section form for enough more to give me a big profit. Is this a fact? If so, how and when should extracted honey be fed back in order to procure comb honey?

Answer.—The feeding of extracted honey in order that comb honey may be obtained is something that has been tried by very many of our best apiarists, and still remains an unsolved problem with some of those who have tried it. Some have reported success and others a failure; but, if I am correct, those who consider the thing a failure far outnumber those who consider it a success. From my experience in the matter, I should say if any one must feed extracted honey to his bees in order that comb honey may be produced, it should be fed in the spring, in order to hasten brood-rearing, thus securing multitudes of bees in time for the honey harvest; then, by putting on the sections at the right time, a large crop of comb honey may be secured, if the flowers do not fail to bloom or yield honey. My experience has also led me to think that it is better to secure the honey in the sections in the first place, rather than have it stored in combs, and then thrown out with the extractor that we and the bees may go through with much labor and stickiness to secure the same thing which we might have secured without all this trouble. The practice of feeding back is on the principle of producing two crops to get one, and no one will argue that such a course would pay in the long run. Even under the most favorable circumstances, to finish nearly completed combs of honey, I can not make it pay if I count my time as any thing. At the close of certain seasons, when I would have a large number of unfinished sections, many of which were so nearly finished that a few ounces of honey would apparently finish them, it seemed that it might pay to feed a little extracted honey to finish such; but after a careful trial of the matter, covering a period of ten or more years, I finally gave it up as a bad job, and have not fed back a pound of honey during the past six years. If any one should wish to satisfy himself that feeding back will not pay, he can get the best results by feeding the extracted honey right at the close of the early white-honey harvest, so that the bees are kept active. It is thought best by some to take away all combs except those which have brood in them, when preparing the colony for feeding back; but if all combs are filled with sealed honey, except that which the brood occupies, there is no advantage in taking away the combs, that I can see. The extracted honey should be thinned to a consistency of raw nectar, by adding the necessary amount of warm water, thinning only the amount needed for one feeding at a time; for if the thinned honey is allowed to stand long in warm weather, it is quite liable to sour and spoil.

Then there is another item against feeding back, which is that, from some reason or other, this fed-back honey is far more likely to candy or become hard in the comb than is that put in the comb at the time it is gathered from the field. When first taken from the hive it looks very nice and attractive; but when cool weather comes on in the fall it assumes a dull, unattractive appearance, thus showing that the honey has hardened in the cells; while comb honey produced in the ordinary way is still liquid, and will keep so for from one to three months after the fed-back article has become almost unsalable.

COMBS OF HONEY FOR NEXT SEASON.

Question.—I have on my hives about 200 combs, very full of honey, which I wish to use for next year's increase. I am at a loss to know what to do, so ask if it would be advisable to throw the honey out with the extractor and use the empty combs, or would it be best to use the full combs of honey? I expect to make my increase by natural swarming.

Answer.—If extracted honey brings a good price in your market, and the honey in the 200 combs is of good quality, then my advice would be to extract the honey and sell it; for the old saying, "A bird in hand is worth two in the bush," is generally correct. If, on the other hand, extracted honey drags heavily, at a price hardly above the cost of production, or the honey in the combs is of a quality not fit for market, then I would store the combs of honey away till spring (allowing the bees to protect them till there was no danger of damage from the larvæ of the wax moth), when I would use these combs for building up colonies in the spring, by exchanging them with the colonies for combs that they might have which were empty, or nearly so. In this way you will get this honey converted into brood, which brood, when hatched into bees, will store for you large quantities of honey. If the colonies in the spring had no need for this honey, then I would use the combs of honey something as you propose, hiving new swarms on them. If the combs are only from one-third to one-half full of honey, then you may secure the best results by hiving your swarms on the full number of frames and putting the sections on at the time of hiving. But if completely full from bottom to top, it will be better to use only from four to six combs to the hive when hiving the swarms; for, if given a full hive of full combs of honey, the bees may not carry much of the honey to the sections, as they generally will do with the whole where only a few are used. If the bees do not immediately start to carrying the honey from these full combs, the result will be little or no honey in the sections, and little brood and few bees in the hive in the fall. But should the honey in the 200 combs be of inferior quality or of dark color, or both, then the only thing to do with it is to extract, or use it for spring feeding; for if such inferior honey is given at swarming time, more or less of it will find its way into the sections, thus injuring the sale of the honey, and giving yourself a bad reputation.

Heads of Grain from Different Fields

COMMISSION HOUSES; THE ADVANTAGE OF CO-OPERATION.

The clipping inclosed is from the Denver *Field and Farm.* It does not speak directly upon the subject of bees, but I think it would be a good thing for bee-keepers to take example, as they have battles to fight in marketing their produce, similar to those of the farmer. O. W. Stewart.

Las Cruces, N. M., July 26.

CO-OPERATIVE MARKETING OF CROPS.

When a crop is produced, but half of the battle against all the evils of trade is won; and unless the farmer finds a good market his labor is lost, and the complaint is made that the farm does not pay. There are many leak-holes between the harvest and the market, by which the profits escape through carelessness; but the most important point, requiring constant vigilance, is the fluctuating scale of supply and demand. Many times the western farmer and stockraiser loses his entire shipment of potatoes or sheep, and frequently receives a bill for freight, with the stereotyped "please remit" stamped upon the paper.

There is no safety in relying upon the middle-men or agents of commission houses, because they give no guarantee of returns except such as the market assures on day of sale. The local merchants are not always justified in paying the value of produce, even in goods, for the reasons that they have not the capital to invest nor facilities for watching the market. Direct shipments can not be made to the market centers except by train or carload lots, and then experienced dealers must accompany the produce in order to realize the full benefits of all that the market returns. Individual marketing has always proven disastrous to the general farmer because of lack of business tact and the small lots of produce he has to offer.

The only solution of the question of realizing all there is in the products of the farm lies in the proper practice of co-operative marketing. The Utah Mormons have constructed irrigation-ditches, built up over three hundred towns, and conquered vast areas of desert by co-operative exertions, fully demonstratstrating the fact that the principle is correct. In citing these facts Joel Shoemaker asks: Why not adopt the methods used in selling as well as in growing produce? Twenty farmers could band together and practically control the community. Five of the best qualified men acting as a board of directors could employ one of their own number as a manager, and transact the business with profit to the entire community.

This plan has worked admirably and profitably in several instances under our personal observation, and the efforts of those enterprising fruit-growers at Montrose, Delta, and Grand Junction, in organizing local market associations, seems a very commendable movement. If it does not succeed as fully as some may hope for the first season or so it is a step in the right direction, and must eventually lead to a better condition all along the line. There is much to be learned in this as in other things; and after all we of the new West need a good deal of schooling in most of our undertakings.

A PROTEST; APIS DORSATA.

Mr. Root:—I can heartily indorse your views regarding the importing of *Apis dorsata*, page 488, and hereby enter my protest against the use of public funds for its importation. If they are of any great value it is surely a "good" personal investment for some of their advocates. From what reliable people in their native home say of them they are too much like wild geese to be of any value to bee-keepers in this country; but, instead, I think they would prove a curse, even if they could withstand our climates, which I very much doubt. I am quite sure that we already have too many varieties of bees in this country, for our own good, and surely more "names" than "varieties." Every thing considered in the make-up of the little bee, I don't believe there is a bee on the face of the earth to-day that is superior to the pure and simple three-banded Italians, and their equals are very scarce, judging from a "personal" standpoint, and information gleaned throughout the United States.

I have said before that I have had experience that I have never seen in print, in the early mating of a queen and a vast number of queen-cells on one comb; and last week I found something that seems as unusual to me, and I have never heard of the like, nor seen it in print.

WORKERS REARED IN WORKER-CELLS.

When I am extracting I make it a rule, after taking the combs from the extractor, to take my old uncapping-knife and shave the heads off from all drones found in the upper stories (I use no queen-excluders); and in doing this I found one comb full of what appeared to be drones, but noticed that the caps were not quite so prominent as usual; and when I severed the caps I found, instead of drones, perfect workers nearly ready to hatch; nothwithstanding the cells were regular old-style and full-sized drone-cells, the little fellows really looked lost in them. Have you or any of your readers ever had an experience of this kind? It seems to me that it proves one thing positively; and that is, that the queen governs the egg-production by her own free will, and that the shape and size of the cell have nothing to do with it, as has been claimed by some writers in the past.

I am of the opinion that our basswood-honey flow is going to be very light here this season, as it is nearly all open now, and bees are not doing much, I think on account of the extremely hot weather for the past week.

Hillsboro, Wis., July 12. ELIAS FOX.

HONEY-FLOW NOT EXTRAORDINARY IN WISCONSIN.

In answer to Dr. Miller, page 477, and Harry Lathrop, page 528, I will say that Northern Wisconsin will not glut the market unless on fall blossoms. Bees are in about the condition they were May 20, except excessive swarming since July 8. Returned last night from an investigating-trip in the direction my bees all want to go, and have 50 colonies, new swarms, ready to start at sundown for an out-apiary 24 miles north of Chippewa Falls, Wis.

I find here willow-herb, goldenrod, frost-flowers, etc., covering the ground for miles where the forest-fires burned in 1895 and '96.

E. A. CLEAVES.

Eagle Point, Wis., July 20.

WHAT IS THE MATTER WITH THE WHITE CLOVER THIS YEAR?

My bees seem to be working very busily this season, but I don't know what they work on. I haven't seen a bee on a white-clover blossom this season. We have no timber within a mile, and not much within three miles, except a few artificial groves of cottonwood, maple, and willow. There is plenty of white clover. SAMUEL CLOUGH.

Ellarton, Ia.

[This report seems to be an exception to the general run. All the rest say that the clover this year is all right.—ED.]

GRANULATION OF ALFALFA.

I am much interested in the discussion as to alfalfa honey granulating. My experience has been that it does not granulate here unless it be in the brood-chamber. I have kept alfalfa honey in 1-lb. sections for a year, and no signs of granulation; but last spring I found it badly granulated in hive (stores that bees had carried over winter).

We are just in the midst of our alfalfa honey-flow. The first crop of alfalfa did not produce much honey; but it is coming in very fast now, and I am afraid my bees will get the swarming-fever. The bees here are all run for comb honey — no extracting yet. I think the home market will take care of the surplus.

Alma, Neb., July 21. T. L. PORTER.

There is an abundance of white clover here, and we are having a slow but steady and lasting flow. From 7 hives and a nucleus with which I began operations this spring, I have taken 238 lbs. of marketable honey in sections, with about 50 lbs. more ready to come off, and no diminution of the flow as yet.

Ben Avon, Pa., July 9. H. P. JOSLIN.

I have been worked up to the highest notch myself, working every day at the railroad shop, and working with the bees nights and mornings. I have taken already 1400 sections of white-clover honey from 12 hives, and more to come. W. L. RICHMOND.

Lexington, Ky., July 11.

There lies your old home

BEE KEEPER FRED ANDERSON, OR THE MYSTERY OF CRYSTAL MOUNTAIN.

BY JOHN H. MARTIN

FRED and Alfaretta halted their ponies near the corral; and while Gimp cared for them they approached the house. The door was a trifle ajar. Fred knocked. There was a stir of chairs within, and hastening steps. The door opened, and Mrs. Buell's troubled face appeared.

"Fred Anderson!" she exclaimed, her face aglow. "Fred Anderson! Fred Anderson! Oh! where is my girl, my Alfaretta?"

"Right here, Mrs. Buell; allow me to introduce her;" and Alfaretta stepped within the house.

"Dear, dear mamma!"

"Dear child!" and mother and daughter were clasped in a long embrace. "My own Alfaretta again, and still not my own, not my own."

"Why, yes, dear mamma. Why do you say so? your own, and well again; and papa—where is dear papa?"

Fred caught Mrs. Buell's eye, and made an energetic dumb motion to her to keep quiet. She appeared much surprised, and abruptly asked, "Where is Dr. Hayden?"

Fred explained the doctor's queer departure, and took occasion to whisper to her, while from the veranda she was showing him where to find Prof. Buell, to say nothing about Alfaretta's parentage.

Fred hastened toward the levee where the professor was at work; but he had not gone far when he met his old friend.

"Fred Anderson, as I live," shouted he. "I had a strong feeling that something good was going to happen, and I hastened to the house. Dr. Hayden, of course, is with you and Alfaretta?"

"Alfaretta is at the house, and sane," said Fred.

"Sane? sane?" repeated Prof. Buell. "Yes, it is possible, and true if you say so, Fred; let us hasten. But, about Dr. Hayden—where is he?"

Then Fred explained to him the sudden departure in the night, and the motive.

"Sure, sure," replied Prof. Buell; "the same self-sacrificing man I knew years ago. I should have been so glad to meet him again. But I believe I shall tell Alfaretta all about her parentage."

"No, I would not," said Fred; "it is the doctor's request that you should not. It might cause much pain to Alfaretta, with no good result."

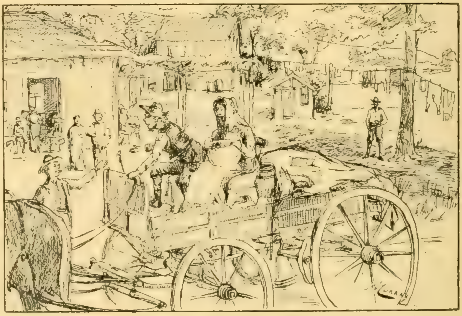
The professor's greeting was less effusive than Mrs. Buell's, but not the less hearty and loving.

"Dear Alfaretta! and yourself again! How great the blessings showered upon us! In this hour of our joy let us remember the Giver of these blessings, the healer of the sick, the one who brings great joy in the place of trouble."

The afternoon and evening were hardly long enough for the rehearsal of the experiences of the past year. Prof. Buell said he would have continued his search for Alfaretta again; but upon his return home he found a letter from Dr. Hayden, saying that Alfaretta would be cared for and returned in due time. This led him to await further developments, and now the sequel showed that Alfaretta's hejira the year before was a providential occurrence. The earthquake was a theme of constant recurrence in conversation, and Fred now learned of its extent. Sacramento had been thoroughly shaken, and the town of Williams had been so severely shaken that several houses were demolished. It was the most severe earthquake felt for years on the Pacific coast.

That evening Fred presented to the parents his claims for the hand of Alfaretta.

"It seems," said Mrs. Buell, "that your lives have run together ever since Alfaretta fished you from the river; and, Fred, as you have been instrumental in bringing her to us well again, we shall let you two decide your own destiny."



"That is what you meant, mamma," said Alfaretta, "when you said I was not your own."

"I suppose so," said Mrs. Buell, evasively; "you know I was so overjoyed, Alfaretta, that I hardly knew what to say. Don't refer to my foolish words again, dear."

The next day Fred desired to visit the Ghering ranch, and Gimp was impatient to see his mother "an' the kids," so the party that rowed up the river consisted of the whole Buell family.

At the Ghering ranch there was great rejoicing again. Fred could hardly believe that Mrs. Ghering was formerly Mrs. Dawson, so great had been the change. He made particular inquiries for Matt Hogan; and while they were talking about him, who should appear but that worthy himself, driving a mule team to a farm wagon, and a comely Irish maid by his side?

Biddy Maloney had been caring for an aged father for many years. She had been a faithful daughter; and when her charge was released by death she hastened to join her lover here in California, and was proving as exemplary a wife as she had been a daughter. Matt had improved his neat ranch, a few miles from the river, and his main source of revenue was from a well-kept apiary.

"It is meself that can projuce the foine honey, Fred. I'd loike yees to settle down here now, and become a compaterter."

"Well, Matt, what do you think of the plan of my buying the Dawson location?"

"Me ould friend, it's a heaven-sint idea," said Matt; "and is it Alfaretta that would make yer home comfortable loike for yees?"

It happened that day, that, after Mr. Ghering had shown all of the improvements he had made upon his ranch, the Dawson ranch was discussed.

"Wall, I 'spose the boys might work it arter a while," said Mrs. Ghering; "but perhaps it's better tu sell it than tu see it go tu rack. But, Fred Anderson, it ain't every one I'd sell tu; but seein' it's you that'll occupy it I'll sell, an' trust tu suthin' tu turn up fur the boys. They seem ter like fishin' better'n ranchin', any way."

"You know, Mrs. Ghering," said Fred, "that I will help your boys all I can, and shall want Gimp right along. We will rejuvenate the old place."

"That's jest my idea," said Mrs. Ghering, and the bargain was closed.

Fred was very happy for a few weeks in setting things to rights on the old Dawson place; and one of the first improvements was the purchase of a dozen colonies of bees of Matt Hogan, as a start for a large apiary.

"Sure," said Matt, "it will be a pleasure to have a neighbor baa-kaaper to talk to."

"Yes, Matt, there's nothing like being fraternal; and now if we had some of those Crystal Mountain queens I have told you about, what wonders we could accomplish!

But," said Fred, sadly, "not even this place will ever equal the bee-keeping paradise that was in the beautiful valley."

There was a quiet wedding at the Buell residence one day; and, after a feast of good things, a boat gaily decked with flowers and streamers carried the bride and groom to their new home. A few weeks after the marriage a letter arrived, addressed to Alfaretta. It was postmarked "City of Mexico;" and upon opening it there was found a card inscribed, "Wedding-present from Uncle Ralph." With the card was a draft for $5000.

"Dear Uncle Ralph!" said Alfaretta; "and what a generous gift! and what a strange man! I never could really understand him."

Fred thought that he might enlighten her; but, no — the secret of her parentage must be kept.

Fred devoted much of his ranch to fruit; and between that and the increase of his apiary he gave employment to several men. Gimp Dawson became so expert with the bees that he was given entire charge of the apiary during a portion of the year. The little church not far away called the people together every Sunday. Fred and Alfaretta became prominent factors again in the exercises, and were always at their posts of duty. Mr. Buell continued to minister to the spiritual needs of the people, and the little church was known as the "Goodwill Union Church."

Fred Anderson, in all of his past losses and disappointments, looked beyond the clouds to the silver lining beyond; and now when the clouds had rolled away, and he was living in the sunshine of prosperity and a happy home he did not forget the source whence all blessings come; and, having a fellow-sympathy for those in trouble, he ever held out the helping hand to them. The home that was now builded here was in marked contrast to the former unhappy Dawson home.

As the seasons progress, there is the seed time and harvest; there is the gathering of the fruit and the grain and the honey; and so, too, in progress of time, there is a wail of an infant beneath the roof.

Mrs. Ghering comes down to congratulate the happy parents. "I s'pose, Mr. Anderson," said she, "that's what you meant when you said you'd rejuvenileate the old place; an' what'r ye goin' to name the boy?"

"Ralph Hayden Anderson," said Alfaretta.

"What a purty name, to be sure!" replied Mrs. Ghering; "may long life and joy rest on all of you."

The tourist passing up the river never fails to notice the neat rose-covered cottage and its well-kept grounds. The Anderson place is one of the beauty spots of the Upper Sacramento; and should he pass in the evening, a child may be seen tumbling on the lawn, while on the vine-covered veranda the happy parents, with guitar and voice, wake the echoes across the river with many familiar songs.

When about to close their evening exercise Fred will commence to thrum a well-known prelude. Alfaretta smiles toward him, and with both sad and pleasant memories of the past she sings that old song:

The night is stormy and dark,
My lover is on the sea;
Let me to the night winds hark,
And hear what they say to me.

THE END.

By
ER
Root
Editorial

From the best information I can get, gleaned from a good many letters, basswood has been generally a failure throughout the country, although in some sections it has been unusually good. A wet cool spring, very favorable for clover and grasses, was "a little too much of a good thing" for basswoods.

I would call special attention to a valuable article by J. A. Buchanan, in another column. He has given us a little food for thought. It should not be true that honey can be bought at a commission house cheaper than it can be from the producer; neither ought it to be true that many bee-keepers make no effort to develop their own home market.

In our last issue I confessed that I had changed my mind on the subject of clipping queens' wings. Mr. E. U. Parshall, of Cooperstown, N. Y., the old tramping-ground of J. Fenimore Cooper, writes: "I think you will enjoy bees better since you changed your mind. I could not keep mine where I do did I not clip my queens."

Mr. Parshall also writes that basswood has been a failure, and that it was his opinion that a good many supplies would be left over.

In the July *Review*, Mr. E. E. Hasty said that he believed friend Hutchinson needed less alteration to make him a model bee-editor than any other editor we have. Bro. York, of the *American Bee Journal*, in commenting on this, says: "Well, Editor Root (E. R.), that settles it so far as you are concerned. You might as well stop *trying* to be a 'model editor.' Need too much alteration." I have been puzzling my head to know whether Bro. York was trying to hit me or to hit the other fellows over my head. Let it fly. Seriously, I've only tried to be myself.

I omitted to mention in our last issue that Mr. W. A. Selser, the branch manager at our Philadelphia office, 10 Vine St., had for his object, in his recent visit to the West, the securing control of a number of apiaries that produce strictly pure white-clover honey. His plan of operation among the bee-keepers, I think, is a very admirable one. While he represents us at Philadelphia the honey business is his own venture.

I remember of once asking him a question regarding the matter of buying honey on commission. Said he, "I can not answer. I always pay cash. I always feel sorry for the poor bee-keeper who sells his honey on commission." Mr. Selser has a warm heart.

A BEE-KEEPER, Mr. Robert Ayers, of Woodley, Fla., with whom A. I. R. once stopped, was stung in the back of the neck. The sting or stings caused a sore, and blood poisoning set in, resulting, we regret to say, in his death. If we were to moralize on this we should hardly be justified in concluding that the stings in this case resulted in death. Possibly a slight breaking in the skin at the same point would have caused the same result, for blood poisoning does sometimes set in, even from slight abrasions of the skin.

THE prospect is good for a fall flow of honey this year—at least around these parts. Frequent rains have made every thing grow luxuriantly. Sweet clover has grown so thriftily that around here at least it has almost all gone to seed ; but the bees have worked on it busily for weeks. Honey has been coming in a little every day—just enough to keep down robbing and to keep the bees good-natured. The season has, therefore, been very favorable for queen-rearing. The asters and other fall flora are now just coming into bloom. Truly, great is the year 1897 for honey.

I FORGOT to mention in our last issue that our new type for the journal gives us about 12½ per cent more reading-matter than we had with our old type—that is, a gain of that much on the contributed matter and editorials, which were "leaded." On answers to correspondents, travels, and Our Homes, and all matter that was set with close lines, or "solid," as the printers term it, the reader loses about 5 per cent. But the total gain, on any estimate, is nearly 9 per cent over what we were giving our readers, taking the journal all through; and at the same time we are giving them a slightly larger letter than heretofore, which, our foreman says, he "specs" will be appreciated by the older readers.

THE ROOT COMPANY EMPLOYEES' PICNIC AT EUCLID BEACH PARK.

OUR employees this season have had an unusually long and heavy run. The force has been divided into day and night gangs, each of 11 hours' run. We have been so busy that we have had to run during Decoration day and the Fourth of July full blast. Working on holidays rather "goes against the grain" of working-people, and I do not blame them; but we had orders to fill, and honest obligations to meet.

Now that we are over the busy rush, the men have planned a big picnic on the 13th, to Euclid Beach Park, on the shore of Lake Erie, near Cleveland, about 40 miles from Medina. This involves a run of about 30 miles on the cars and 10 by boat. I wish all our readers might be present with us and enjoy the picnic with our busy workers of the Home of the Honey-bees.

We have had, during our heavy run of business, about 180 employees. If these people take along their families, their "best girls," and their "best fellows," we may have a shop picnic aggregating some 400 or 500. On that day our whole plant will be shut up, office and all, as tight as a box, with only a watchman and perhaps a clerk to take care of telegrams and urgent business.

THE '97 HOFFMAN FRAMES.

THE new end-spacing Hoffman frame met with an immediate and hearty reception; and, moreover, it seems to have been just what bee-keepers were looking for. Mr. Nysewander says his trade has been greatly pleased with them. There are only two staples used to a frame; and yet our records show that we have this season bought about a ton of them. There are 800 staples to the pound, or enough to make 400 frames; 2000 times 400 makes exactly 800,000. If this does not mean that the new end-spacing Hoffman frame is popular, I do not know what does.

I have experimented with and tested a good many kinds of frames, including quite a variety of closed ends ; but I do not know of any thing that begins to suit me anywhere near as well as the new-style Hoffman. It can be handled twice or nearly three times as rapidly as the old-style unspaced Langstroth frames; and in these days of low prices on honey it means that we must make short cuts. Our '96 style of Hoffman was a good frame; but the '97 pattern is far ahead of it.

SMOKER FUEL; DRIED TWIGS AND PLANER SHAVINGS.

FOR years we have been using and recommending planer-shavings for smoker fuel. For a longer period of time Mr. Bingham has recommended stovewood split up into short lengths. Mr. Hutchinson, in a recent number of his journal, says it makes good fuel, but it burns out the smoker-cup too fast, and rather recommends planer-shavings, or fuel of that sort. At our basswood yard, having gotten nearly out of the excelsior sawdust (a fuel that is something like planer-shavings in its results) I made an attempt to piece out the fuel by breaking up, into lengths of four or five inches, dead limbs or twigs from the basswood-trees. A little excelsior fuel was lighted, and the cup filled up with broken twigs. It was very evident that, while the smoke was not as dense, it was much more lasting, and, except with the very crossest colonies, it gave very satisfactory results ; and I am inclined now to believe that a combination of planer-shavings and soft dry wood would be more satisfactory, generally, than either alone.

SECOND CROP OF WHITE CLOVER.

WE can hardly say that the honey season is closed in this vicinity, and reports coming in would seem to indicate a like condition in other localities. There seems to be around here, at least, what we might call a second crop of white clover. This is particularly noticeable in the fields from which grass has been cut for hay. The frequent rains have made sweet clover do better than usual, and have caused red clover (or peavine) to put forth its best efforts in honey secretion. While the bees have not made much of an attempt to store surplus since about the middle of July, they have held their own and a little more. It begins to look now as if we should not have to use extracting-combs containing sealed honey that has been set aside for wintering purposes. If the fall flow shall amount to any thing, very little feeding will be necessary. All of this, if general, looks toward prosperity for the bee-keeper. During a number of the previous seasons, the clovers (especially the white) have been killed out root and branch by the drouth. This year, clovers of every description are well rooted, and we may well hope, at least, for a good clover crop next year.

BIG COLONIES, AGAIN.

I HAVE said a good deal in our late issues in regard to the value of powerful colonies; and, as I have said before, I reiterate; I expect to say a good deal more about it. It is one of those things that will bear repetition; for I believe it is going to take a good deal of pounding to get the fact thoroughly into the heads of bee-keepers. Well, here goes for round No.—let's see—somewhere about seven or eight—call it eight—for I am sure I have harped on this question at least eight times.

I have noticed that a two-story eight-frame Langstroth colony, run for extracted, is just the sort of colony we need for producing comb honey. Take off the upper story with all its extracting-combs, that the bees have begun storing in, and place in its stead one super containing full sheets of foundation, and, my! how the bees go to work! If the colony is very populous it may be wise to put on two supers. I am not sure, but I am inclined to believe that a good way to start bees to storing honey in supers is to give them extracting-combs; and if the season is a good one, take the super away and give them supers prepared for comb honey. But the plan won't work a little bit unless the hive is fairly "biling" over with bees. The super that has been removed may be given to an extracting-colony to complete.

JOSEPH NYSEWANDER.

WE have with us to-day Mr. Joseph Nysewander, of Des Moines, Iowa, who is almost too well known to need any introduction here. Originally he was an obscure bee-keeper in New Carlisle, Ohio.

I remember very distinctly of our receiving a letter from Mr. Nysewander, at that point, offering his services as stenographer and typewriter operator, adding that he was using a caligraph. As we had no stenographer at that time he was engaged, and worked for us a time. He finally left us, and struck out for himself, buying supplies and doing some manufacturing. He shortly discontinued manufacturing, as he early discovered that the large factories could not only make supplies for him cheaper, but better goods as well. Soon after, we began sending him supplies by the carload, for I believe he was one of the very first who bought goods of us in a wholesale way, and he has ever since been getting his stuff by the carload. During the past year he has already purchased of us *thirteen* carloads of goods, besides numerous small shipments.

He is a young hustling business man; and the rapid strides that he has made in the bee-supply line is no small credit to his enterprise and pluck. He is now on his return trip to Des Moines, having been to visit his father, who is very sick, and who even now is not out of danger.

A TWELVE-MILLION-DOLLAR GLUCOSE TRUST AND ITS SIGNIFICANCE.

IN our issue for July 1st I stated that it had been reported that the glucose-factories of the United States had formed a trust aggregating two millions of dollars, and added that I hoped this trust would put the price on the stuff up so high that it will not pay to use it in honey. Another item now appears in the daily press, to the effect that another glucose combine has been formed, aggregating something like *twelve millions!* If this is true, it goes to show that there must be an enormous demand for an article that is used, if I am correct, entirely for the purposes of adulteration.

By the way, it was somewhat of a query in my mind *why* this particular trust should be formed at *this particular time*. Then it occurred to me that it might be the tariff. In looking over the Dingley act I find glucose has a tariff of 1½ cts. per lb., the old rate being 15 per cent ad valorem. The new duty is heavy enough to shut out foreign competition; and now an enormous trust has been formed, it ought to be possible for it to run the price up to where I hope it won't pay to use it in honey. Let it go up. Honey has been coming down in price; and if it is true that glucose will be going up, all the better for the bee-keepers. It is when honey goes *up* and glucose *down* that the adulteration of honey is on the increase.

It is also reported that injunction proceedings will be begun against the formation of this big trust, under the anti-trust law. I don't know, but somehow I *hope* the injunction will be dissolved, and that the trust will shove the price up.

REPORTS IN REGARD TO DRAWN FOUNDATION.

VERY unfortunately the new dies were completed too late to get samples all over the country in time for the honey-flow. In the great majority of instances the honey-flow was either waning or had stopped at the time the drawn foundation was received, and the results were, therefore, somewhat negative in some instances. A lot we sent to Mr. F. A. Salisbury reached him just about the time the honey season was stopping. After putting the drawn foundation and full sheets of ordinary foundation in the same super on the hive, he wrote us, July 17, "Honey for the last few days has not been brought in as a short time before." . . . "The foundation is drawn out about ⅛ inch; and the drawn foundation is fastened all around by the bees, and slightly bulged." Again, on the 20th of July, he writes: "I looked at the foundation and drawn foundation, and found both in about the same condition as on the 17th. It looks as though our honey season were at a close."

In the mean time we had written to Mr. George E. Hilton, knowing that willow-herb would follow later than clover, and asking him if he would test the drawn foundation. He immediately replied that he could, but asked us to send three supers, each containing half drawn foundation and half full sheets, to Mr. Robert, at Woodville, Mich. The supers were sent ; and under date of Aug. 5th Mr. Robert writes: "At noon to-day the common foundation had cells fully as deep as the drawn, and much whiter and more uniform in appearance. Honey is not coming in very fast, and work in sections goes on very slowly."

This test so far would seem to be rather against the new article; but one swallow does not make a summer.

Mr. D. N. Ritchie, of Black Lick, O., who, I think, is speaking of the new drawn foundation, writes, Aug. 6th: "We took off the box containing the new-process foundation, and I must say it excels the natural—no fishbone, and *better to eat*." The fact that Mr. Ritchie compares the new process with the natural, and speaks of the "no fishbone," leads me to believe he was referring to the new drawn foundation.

Mr. B. F. Onderdonk, of Mountain View, N. J., had previously written us very favorably in regard to the new drawn foundation. In a later letter he writes:

> The experimental super was taken off last evening. July 1st it was placed on a strong colony, and this, as I explained before, was near the end of the honey-flow, as the drouth had set in, lasting from the 20th of June till the 13th of July, without a drop of rain. July 10th I examined and found the new deep-cell foundation, and natural starters, fully drawn and honey stored; Dadant's full sheets half drawn; Van Deusen not touched.

It will be seen from this that the drawn foundation fully equals the natural comb, and that both were ahead of ordinary foundation. Assuming that Dadant's was equal to the best of ordinary foundation, here clearly is an instance where drawn foundation and natural comb were decidedly ahead; but it should be stated that the test was more severe because Mr. Onderdonk used narrow starters of drawn foundation—one at the top and one at the bottom. These in the above test were placed over against *full sheets* of ordinary foundation.

Mr. Onderdonk states further on that the space between the two starters, top and bottom, of the drawn foundation, was filled in with natural drone comb, and therefore the appearance of the comb honey from the full sheets of foundation was better because it was all worker; but, of course, if Mr. Onderdonk had had the full sheets of drawn that we are *now* making, the appearance would have been just as good, and the result decidedly in favor of the new product.

We also sent some samples of the new drawn foundation to Dr. A. B. Mason. At the time of sending I told him that I knew he would give them a very fair and impartial test; and that if the thing did not pan out well I knew he would be prompt and fearless enough to say so, for he is one of those chaps who, if the other fellow does not like what he has to say—well, he does not worry much about it. He has tested the new foundation, and here is what he says:

> The ten samples of drawn foundation (or whatever you call it) you sent me for trial came duly to hand. Eight of the pieces, 3¾ by 3¾ inches square, were put in two shallow super frames, four in each; and as the four didn't fill the frames to their full length a piece of newly built comb of about the same thickness as the drawn foundation was put in to fill it. In five days all was filled with honey, and nicely sealed over.
>
> Having some company to dinner the next day after I had removed the honey from the hive, I thought it would be a good time to test it. One of the company I have known as a great lover and consumer of honey, eating it at nearly every meal for years.
>
> Both kinds, the natural comb made by the bees, and the drawn foundation, were tested, and some said the drawn foundation was the nicer, but *none* thought the natural comb was any nicer, or less "gobby" than that from the drawn foundation; and the great honey-eater above mentioned thought the comb from the drawn foundation was the nicer, and preferred it to the other. For my own part I could not possibly make myself see any difference, except near the edges, and there our samples of natural comb were heavier than that from the drawn foundation.
>
> A. B. MASON.
>
> Station B, Toledo, O., Aug. 6.

The doctor's experience is more in line with our own; and it does not seem to me that there can be any question about the eating-quality of the drawn-foundation comb honey.

I will be frank about it and state that, in my opinion, there are times when drawn foundation may not show any particular advantage over ordinary foundation ; but I am just as sure that, in a majority of instances, it will prove superior, as I am sure it is an advantage to use full sheets of common foundation instead of narrow starters of the same article.

Before any opposition came up at all, it was universally admitted last year that it would be a great advantage to use natural-comb starters in supers for the purpose of starting the bees to work in the supers. It was, however, admitted that, after the bees got once started, they might work just as well on foundation as on the natural comb. Mr. B. Taylor, a year or so before he died, called attention to the great value of drawn combs, and many another one fully indorsed it ; and all the tests so far with the natural comb and the drawn foundation, both of the same depth, seem to show equal results. So we may assume that there will be a big demand for drawn foundation, even though we admit that there are times when foundation will give as good results.

You will see that I have endeavored in the above to state the facts fairly. I have not tried to bolster up drawn foundation any more than it deserves.

DON'T forget the big convention that takes place from the 24th to the 26th at Caton Hall, Buffalo. A. I. R., Mrs. E. R. Root, Leland, and myself expect to be present. See convention notes for rates. After attending the convention I expect to tour eastward among bee-keepers, part of the way on my wheel.

NOTES OF TRAVEL
BY A. I. ROOT.

ON THE WHEEL AMONG THE POTATO-GROWERS.

On the next to the last day of July I started off to visit a relative about thirty miles away. Our boy Huber, fourteen years old, rather thought he could keep up with me on the wheel, and so he proposed to go along. When about half a mile from home I stopped to see my mother, who is living with my youngest sister; and finally two of my sister's children, aged respectively thirteen and sixteen, decided to make two of the party provided I would go slowly and rest often. Come to think of it, I guess it was the mother who enjoined the above conditions in case they went along with Uncle Amos. Neither of the girls had ridden a wheel more than two months; but they put off in fine spirits, notwithstanding the warm July weather.

When about ten miles from home I proposed a little "rest in the shade while we tried some lemonade." Now, that rhymed itself — you must not lay it to me. When we were seventeen miles from home I told the children it was time for my forenoon nap. We were near Fairlawn, a place where I often stop for rest and refreshment. The good people there promised to have dinner ready by the time I woke up, and all together I managed to get the children to rest nearly an hour.

A little further along we stopped at Mr. Miller's, where they grew those beautiful cold-frame cabbage-plants last fall. The Wakefield cabbages were all sold, but they were just carrying into the city of Akron great beautiful heads of Early Summer by the wagon-load. There seemed to be quite a discrepancy between the prices we get for cabbage on our market-wagon and the price paid by the largest wholesale grocer in Akron. They said their first Wakefields brought them 60 cts. a dozen, but they finally got down to 30 cts. His great heads of Early Summer, weighing from 4 to 8 lbs. apiece, brought only 2½ cts. by the wagon-load. Now, the price that we receive at retail is from 10 to 20 cts. apiece; but this large wholesale dealer pays, say, 2½ cts. a head. He turns them over to the retail grocer at perhaps 4 or 5 cts. The retail grocer trims off some of the leaves so as to keep them looking nice and fresh, thus reducing the weight, and sends them all over the city to his customers (you know it is the fashion to deliver goods nowadays, even if it is only a spool of thread or a paper of pins), and gets 10 cts. a head. Now, it looks as if there were pretty good profits here, and I confess I think so still. But, dear friends, you have your choice. Those who grow the cabbages can run a wagon to the consumer, and deliver them direct, and get the big prices; and the consumer can, if he chooses, get acquainted with the gardener, and go or send right to the grower and cut short the profits of the middleman. We all know this; but, notwithstanding, where a man grows cabbages by the acre he sooner or later prefers to sell them to somebody who will take the whole lot right off his hands, and let him go to work raising another crop where the cabbages grew.

A little further along I stopped at the Atwood celery-farm. Mr. Atwood says his ground does not produce celery as well as it did years ago; and he thinks even muck land does better under some system of rotation. I found him and his men in the bunch-onion business. They have a fine crop of Southport White Globe onions, and they are putting three onions in a bunch, said onions being from the size of a hen's egg up to that of a small-sized goose egg. Such bunches retail for a nickel; but the man who grows them by the acre is glad to have them taken off his hands in quantities at *only a cent a bunch*. It is the same with cabbages. The middleman who consents to take these perishable goods by the wagonload must have a margin so he can deliver them at a low price to the retail grocer. The latter must have a profit, so that at times when they do not go off readily he can sell three bunches for a dime, or two for a nickel, when they begin to get a little old.

Mr. Atwood thinks that onions do finely after celery; and I suppose that, after growing onions for a while, the celery will be all right again.

While I talked cabbages and onions the children enjoyed themselves in exploring the gardens and grounds; and when I reached my cousin's farm, where Huber's cyclometer registered just 31 miles from our starting-point, the children felt so well that the two older ones declared they could turn right round and go back home before dark, and just enjoy the fun of it. I told them, however, they would do well if they made the trip after a good night's rest.

As our stopping-place was only three miles from Mogadore, Summit Co., O., my old boyhood home, we proposed to visit over there after supper. The children suggested taking their wheels; but I thought they had had wheeling enough that day. Mr. Wolf furnished us a big stout horse and surrey; and with his two children (a boy of twelve and a girl of seventeen) we had a merry party, I assure you. I presume the good people who lived in the cottage on the hill were somewhat surprised to see such a crowd marching into their quiet dooryard; but after I informed the good lady, that about fifty years ago my grandfather made my mother a present of that home, and that I lived there about 11 years during my childhood, she very courteously invited us to make ourselves at home all over the premises. Old familiar landmarks met me on every side. I walked around the octagon house, and climbed down the steps on the gravelly hillside; admired the beets, vineless sweet potatoes, lima beans, and other vegetables that still grew with such wonderful vigor on that gravelly hillside; then I pushed open an unused gate. After some groping among the bushes I found a well-remembered path, and the children trailed after me down to the babbling brook. A good strong plank took us across to the old cold spring in the hillside. A little stone crock stood on a shelf above the spring. The dark-colored earthenware seemed to invite coolness. While dipping up the sparkling water I remembered the many times I have craved, especially during sickness, a cooling drink from that very spring. I passed the water around, and each and all declared they had never in their life tasted such refreshing spring water; and Huber said, "Why, pa, this is surely as cold as ice water." They had forgotten their ride of 31 miles, perhaps, and also that it was a hot July day; but, notwithstanding, I had to agree with them that that water was all my fancy and memory had painted it. I drank it again and again. The water from that spring does not need *boiling* to make it wholesome. And then I wondered if my digestion would not be good without the necessity of riding a wheel if I could live where I could drink daily from the waters of that celebrated Mogadore "cold" spring. The well-worn path down the hillside attests the fact that many besides myself had taken a fancy to this special spring. Cousin Wolf has a spring in a hillside right close to his dwelling; but the waters are hardly equal to those of this particular one I have been talking about. He was a little surprised when I told him that, for the small sum of $9.00, he could get a little hydraulic ram that would send the water all over his house, and all over his farm, for that matter. Of course, the expense of the piping would be extra. We sat out under the shade-trees talking over old times. The young ladies thought they would retire; but Huber, as he lay in the hammock, said he thought he would not go to bed till "pa did." When I was ready to go, however, he did not respond. My cousin called to him; then he shook him. Finally I gave him a shake, and then—what do you think? Why, he declared he had not been asleep at all, and was sure he heard all we had been talking about; and I think he did—fifteen or twenty minutes before he needed such a shaking. I tell you, friends, a boy of fourteen, who is growing like a weed, needs lots of sleep, especially after he has ridden over thirty miles on the wheel in one day. By the way, dear father and mother, let me suggest to you to give the boy, and girl too, all the sleep they need when they are in their teens. Would you think it any thing strange if I were to tell you a little care to give them plenty of sleep and rest when they are growing so rapidly might lay the foundation for robust health and usefulness in later years?

Next morning the children were all right, and wild to try their wheels again; but Mr. Wolf promised to take us to visit Wilbur Fenn's if we would wait an hour or two. On the way we picked up my relative, Dennis Fenn, and a little later we ran across Mr. Metlin, so we finally had five potato-growers together in council. I have not space to give you all of that talk; but I will *take* space to give you just one little item to show you how intricate and complicated is the matter of growing just a crop of potatoes.

Cousin Fenn took us over to a nine-acre field. The greater part of this field looked as his fields usually do. Every hill of potatoes was so much like its neighbors that there was scarcely a choice between them—no bugs, a perfect stand, all bright and thrifty. At one end of the field, however, there were perhaps twenty or thirty rows that were not up to the standard. You could tell the dividing line clear through the field. I suggested there was a different kind of seed. He shook his head. "Planted at a different time?" he shook his head again.

"Well, Wilbur, what makes the difference?"

He answered something as follows:

"You see, I have always advocated planting potatoes in loose ground. I did not believe it was best to roll the ground at all. I wanted it so the potatoes could expand and enlarge symmetrically without being squeezed out of shape by uncongenial surroundings. I put in my planter and started to plant the field without rolling the ground. When I had got thus far I did not feel quite suited with the way things were going, and so hitched on to the heavy roller, and rolled the rest of those nine acres. You see the result."

Now, this would seem incredible were not the object-lesson right before our eyes. Without a question, the use of that roller on that field of nine acres more than paid for itself in growing this one crop of potatoes. I strongly suspect that the low yield of potatoes per acre throughout our State of Ohio is owing to the fact that the farmers who grow them are so poorly supplied with proper tools for pulverizing and fining up the soil.

Finally the children were delighted to be permitted to step out of the buggy and take their wheels once more. We just flew over the cinder wheel-path between the White Grocery and Middlebury; and when we came on to the paved streets on the side of Akron toward our home, Miss Rena would anticipate me and run up hill like a young colt that had got started for home. I tried to have her stop long enough to see the beautiful residences along the suburbs of that Akron road, but I could not hold her back. We took a hasty dinner where we had dined the day before; but when about ten miles from home it was evident that the girls were becoming tired. We took long rests under the shade-trees beside the road. We washed our faces in the babbling brooks coming from hill-side springs, and I for one had a really restful holiday. We reached home at five o'clock, having made about 65 miles in two days. All declared they would like the fun of doing it all over again.

Now, dear friends, if your boys or girls are crazy for a wheel, give them the means if you can of earning one; and when they get it, watch over them and see that they make a proper use of this wonderful new gift that has so recently come from the kind Father above; and when the wheel comes, teach the children to make a good use of it. Do not let them ride far at a time. Have them take plenty of sleep and rest. Don't let them undertake a century in one day until they are men and women grown; but before that time have them trained in the fear of the Lord so that never, under *any* circumstances, will they think of undertaking a century run *on Sunday*.

OUR NEIGHBORS.

Thou shalt love thy neighbor as thyself.—MATT. 19:19.

For several years past I have had invitations to visit the great seedsmen, and look over their trial-grounds around the city of Philadelphia. There are perhaps more prominent seedsmen congregated in this city than in any other one spot on the face of the earth. I was told the best time for me to visit would be during the month of August. On Monday morning, Aug. 2d, while at the breakfast-table I noticed a low rate on account of the meeting of the League of American Wheelmen. To take advantage of this low rate I should have to go during the first week in August; and to be sure and get around without being away from home over Sunday, it was needful I should start in the fore part of the week. So all of a sudden I made my preparations and was off. Now, I do not propose in this department to tell you much about my visit to the wonderful gardens and seed-growing farms; but I will tell you of these things later. I love to study plants and high-pressure gardening; but I love to study humanity and my "neighbors" still more.

I soon found myself among a crowd of more than ten thousand boys and girls who love to ride the wheel. Some of them were doubtless pretty well along in life; but with their wheeling-suits they seemed to be youthful, at least for the time being. Perhaps I should tell you that I am and have been a member of the L. A. W. almost since it started. Of course, I am not in sympathy with Sunday riding nor with the racing business, as a rule; but for all that, I am in deep sympathy and in touch with all these people who are finding health, strength, and happiness through the proper use of the wheel. I am also in deep sympathy with the movement that the L. A. W. has inaugurated in the way of better roads and freer communication with our neighbors and the whole outside world.

I have frequently spoken of the facilities for wheeling in this, that, and the other location. I said the sandy desert of Arizona, in special localities, was the finest place for wheeling in the whole wide world; and when down in Florida I spoke with enthusiasm of the sandy beach, just as it was left by the briny ocean waves, so hard and firm that the wheel passed over it without leaving even a visible track; but when I got outside of the city of Philadelphia, and tried their beautiful cement roads, with their graceful curves up and down the slopes, with the green lawns and brilliant arrangement of flowers and foliage, with beds on either side, I decided I should have to take it all back, and admit that the suburbs of Philadelphia come nearer to being the wheelman's paradise than any other spot I have ever viewed on the face of the earth. It would have done you good to see the way in which the boys and girls congregated there and enjoyed this privilege. Not only all day long were they seen spinning and flying in every direction, but even late at night. Yes, I myself was out until between ten and eleven on two or three occasions; and even at these hours wheels were flying with boys and girls. There were tandems in great numbers, and the front seat was almost always occupied by a pretty woman with her brother, husband, or lover—of course I could not tell which—just back of her. With every crowd of boys there were almost sure to be two or three girls; and may be this accounts for the fact that, during my stay of three days in the city, my ears were only once pained by hearing an oath, and this once was by an outsider and not by one of the wheelmen. May God be praised for so much; and if the constant presence of womankind among the boys out on their sports and recreation had something to do with the circumstance, then I am glad that it is the fashion to take the girls along, even in our athletic sports.

As soon as I arrived in the city I saw banners in every direction proclaiming, "Welcome, L. A. W." Hotels had the same welcome, with reduced rates, and the restaurants made it a business to provide a special low-rate dinner especially for the wheel-riders. Rides were planned on the steamers to the various pleasure-resorts, free to every one who showed his L. A. W. ticket. This ticket, let me explain, is given to every subscriber to the spicy little magazine entitled *The L. A. W. and Good Roads*.

Before I go any further, permit me to say that my heart has been rejoiced during the present year to know that the president of this great organization is a Christian man; and he has been doing some grand work in the line of discouraging Sunday centuries, as well as all kinds of Sunday racing, and things of like import.

Wednesday evening we had a beautiful boat-ride up the Delaware River, and then back again *down* the river to Washington Park. This park is an immense garden in the shape of a pleasure-resort. The ground around and between the trees is all covered with a smooth floor which is kept constantly neatly swept. Abundance of shade, excellent water, refreshing drinks, with ice-cream and refreshments in general, make it a pretty place right up to the water's edge. A Ferris wheel, very much like the one in Chicago (only 10 cts. for a ride), receives, of course, a large patronage. Toboggan-slides that start away up above the tree-tops, send boat-loads of passengers down a long steep incline with terrific speed, landing them in the waters of the little artificial lake. The boat strikes the water with such force that it skips with its living freight away up into the air, and bounds and rebounds again and again. Of course, the water flies in great torrents in every direction except toward those in the boat. With the splashing of the water, and the shrieking of the boys and girls inside, it makes a most animated scene.

When the boat was pretty well loaded, so the rebound was unusually great, it seemed as if some of the inmates were thrown nearly two feet above their seats; but as they clung together, and came down all right with no one hurt, the program kept being repeated all day and away into the night. Finally, when it was announced that one of our expert cyclers was to ride down that incline on a *wheel*, great crowds gathered all around the banks of the lake. We were afraid we should not be able to see him clearly; but when we found he carried a lot of fireworks attached to either handle-bar we were pretty well satisfied in this respect. Down, down he went, with terrific speed. It made me think of some of my adventures in going down long steep hills. Just when everybody was holding his breath, when the wheel was up to its very highest speed, the rider dropped his fireworks, and sprang from his wheel just in time to dive down into the water. He came up safe and sound somewhere out in the middle of the pool, then swam ashore while a boat near by fished out of the water his dripping wheel. Then the crowd was called up to witness the play of the electric fountains. This was much like the one at the World's Fair, except that it was much more elaborate. While we sat entranced by the brilliant sparkling sprays of the water, listening in the meanwhile to the most exquisite strains of music from one of the finest bands the world can probably furnish, through the misty waters some dim phantom-like object seemed slowly rising. Was it imagination? or were there really some letters that meant something through that sparkling, radiant combination of rainbow colors and sparkling waters? Oh, yes! there were the words, "Welcome, L. A. W.," rising right out of the water; yes, and there seemed to be human hands holding aloft a beautiful banner; and finally up out of the water itself came three Graces in woman form—veritable mermaids rising up out of the depths of the sea, holding aloft their banner. Somebody who stood by me said, "Surely, they can not be living figures, although they are astonishingly true to life." But at just that moment the central goddess — yes, she would have made a very good Goddess of Liberty—waved her hand and bestowed a most bewitching smile upon the crowds of American wheelmen. Now, this naiad who rose up out of the water was not clothed with very much of any thing; in fact, a water-nymph would not be supposed to need *very much* drapery, even though she appeared before a great audience. The dazzling spray and the rippling water clothed her as with a halo. I suppose you know your old friend who writes these Home Papers has been more or less critical in regard to things of this kind—circuses, theaters, and the like. Well, for once I was somewhat puzzled. The mechanical effects produced by these wonderful electric fountains were grand, and there was nothing objectionable about them. The accompanying music was also entrancing. The beautiful grounds and shade-trees seemed to make the place a little paradise on earth; and that figure of the beautiful woman, so artistically combined with the other environments, need not necessarily have been objectionable. If I am making any mistake, I pray that the Holy Spirit may set me right.

The next day our good friend Selser, who represents our Philadelphia house, insisted that I must make at least a brief visit to Atlantic City before leaving Philadelphia. He did not tell me what I should see, but asked me to trust him. Our passage of 60 miles was made in 55 minutes, including one stop; and this railway, so straight and level and beautiful in all its appointments, is in the habit of making this speed right along. If I am correct, it is the fastest train in the world.

Atlantic City is a place of 200,000 people—at least, that is the number at this season of the year. In the winter time it shrinks down to *twenty* thousand. I will tell you why; it is one of the most celebrated bathing-places in the world. It is all hotels, bathing-houses, and such places of business as usually congregate under such circumstances. When I first caught sight of a group of perhaps fifty or a hundred bathers on the shore, I wanted to stop a little; but friend Selser had a different plan. "Come," said he; "let us take a little stroll through 'Vanity Fair.' Perhaps that is not quite the proper name, but it may make you think of it. We will look at the bathers a little further on."

I have not time here to describe the beautiful pavilions, machinery of all sorts for pleasure and recreation, curiosities exhibited for sale from all parts of the earth, mechanical inventions in the way of electricity, chemistry, optics, etc. Finally we came to the center of attraction. Almost as far as the eye could reach, human beings were down in the surf getting health and recreation amid the deafening roar of the salt-water breakers. Hundreds does not tell the story. There were literally thousands of human beings, all mixed up, some under water, some on top of it, and all enjoying themselves. Mr. Selser did not urge; but when I expressed a wish to join them he said "All right." There was such a crowd for bathing-suits that we had to wait quite a spell. I soon became accustomed to men and women all around me in their novel dresses (or *un*dress,) looking like a lot of frolicsome juveniles instead of grown-up men and women. My preconceived notions for a while rebelled against this sudden departure from ordinary decorum, but I made up my mind that it was my business to observe and inquire, rather than to criticise. The first thing that struck me was that such a bathing-place is of itself a great leveler. Poor people and rich people, as well as old and young, were all mixed up indiscriminately. The millionaire and his wife and daughters, when they threw off their costly clothing, also threw off, at least to a certain extent, their pride—and I came pretty near saying arrogance. May be it *is* the right word. It took me a little time to get over the chill of first going into the briny water; and, remembering that I had only recently thrown off my overcoat and fur cap, I felt a little anxiety. In a short time, however, I was tumbling around with the rest, and laughing and shouting until I almost forgot to shut my eyes and mouth and hold my breath when the big foamy billows came surging over us. Friend Selser kept urging me to turn my back toward the wave when I saw it coming, for it might strike with such force as to hurt my face. There are two ways of meeting breakers. One is to dive through them, and the other is to jump up so your head comes out of the way of the water. At every wave, more or less of us tumbled down and got mixed up. Oh! but didn't we get clean with that tremendous washing and rinsing from the briny waves? Some of us were awkward, but nobody seemed disposed to be touchy or to complain. There seemed to be the utmost good nature prevailing everywhere. Everybody laughed at all that happened. Once or twice I saw some awkward country youth back up so as to jostle some fine lady, evidently of rank and culture; but his awkward apology was always accepted, even if it was hardly what the circumstances seemed to warrant; and with all the haps and mishaps of that delightful day I did not hear one unkind or even despondent remark. I am not sure that I even saw a despondent *look*.

Oh, dear me! why didn't it so happen that I might take a salt-water bath every day in the year? Now, then, is there any thing wrong about having all humanity bathe together in this promiscuous way? When you become accustomed to it, everybody seems at least decently and becomingly clad — that is, for the time being. If we would all remember to clothe our minds and *thoughts* in such a garb as we are sure would be pleasing to the great Father above, it would not matter so very much about this matter of dress. If everybody loved his neighbor with a pure and holy love (as in the language of our text), woman's dress might conform to season and circumstances, at least far enough to allow her to move easily and gracefully through her vocations in life. Perhaps we should need more often to pray, "Create in me a clean heart, O God, and renew a right spirit within me;" but such a prayer would only bring us nearer to God; and any circumstance or set of circumstances that would drive us oftener to the throne of grace might be a blessing in itself.

(*Continued in our next.*)

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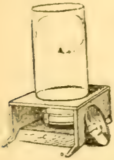

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SPECIAL NOTICES FROM BUSINESS MANAGER

BEESWAX DECLINED.

The demand for beeswax has slackened because the season for making comb foundation is practically over. The price is also on the down grade., From now on until further notice we will pay 23 cts. cash, 25 in trade, for average wax delivered here. For select lots of sun-extracted wax we usually pay one to two cents above the price of average.

CALIFORNIA EXTRACTED HONEY.

As I write this, our carload of honey has just arrived from California. We shall be pleased to hear from those in need of honey who did not raise enough to supply their home trade. The honey is in 60-lb. cans, 2 in a case. Water white, in case lots, at 6½c per lb.; light amber at 6. Samples and prices on large lots furnished on application.

CLOVER HONEY, COMB AND EXTRACTED.

We are prepared to furnish both comb and extracted honey, gathered mainly from white clover, in large or small lots. Particulars and prices on application. As in years past, we will serve as a medium of exchange between those who have a surplus and those who do not have honey enough to supply their home trade. We shall be pleased to hear from both.

CANS FOR EXTRACTED HONEY.

We have just received from the factory a carload of over 3800 five-gallon square cans, most of them with the 2-inch lever seal. A few have 1¾-inch screw caps with seal. These cans are the very best quality, Record make, and we can furnish either style, 2 in a box, in 10-box lots and upward at 60c a box; 50-box lots at 57c; 100 boxes at 55c a box, shipped from Medina. We can furnish cans with 1⅝-inch caps from Chicago, or St. Louis, Mo., at the same price.

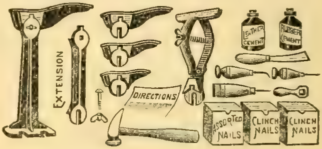
We can also supply from Medina one-gallon cans with the 2-inch lever seal, in boxes of 100, at $9.00 per 100—a special low price to reduce stock. These cans, put up 10 in a box, in lots of 10 boxes, at $1.20. We have devised a screw-cap honey-gate to fit the lever-seal cans, which we can supply to those who require them, at the regular price, 15c each.

HONEY MARKET.

Although still early for selling honey, there is a fair demand, and prices seem to be pretty well maintained, and choice honey is already finding ready sale. Later reports show that, in many sections, the crop will be much less than at first anticipated. In the northern New England States there seems to have been very little honey gathered; likewise in Minnesota, owing to cool weather and rains, very little honey has been gathered from the white-clover bloom, which is very abundant. In Michigan the yield from willow-herb seems to be cut short. With abundant farm crops and fairly good prices; with the starting-up of so many industries that have been dormant or working on short time during the past three or four years, the demand for honey should be so improved that as good or even better prices should be realized than last year. If bee-keepers who have plenty of honey will not make the mistake of rushing it off to the large cities into the hands of irresponsible commission houses, but will, instead, develop their home market to the fullest extent, there will be hope for improved prices for honey instead of lower. If Americans generally consumed as much honey as they do in Europe there would be demand enough for a full crop of honey. Make sure that the consumer gets pure honey; and to help toward that end, join the United States Bee-keepers' Union, paying your fee of $1.00, and thus furnish the sinews of war for the prosecution of those unscrupulous firms and individuals who palm off upon the unsuspecting public a mixture consisting chiefly of glucose, but under the name of pure honey. Such stuff does a great deal more harm to the honey business, by blunting and destroying the taste for honey, than in any other way. If people can get *pure* honey they will continue to eat it, while they will not continue so readily to eat the mixed stuff. Send your membership fee to Dr. A. B. Mason, Station B, Toledo, Ohio; or, if more convenient, send it here. By sending us $1.75 you can have GLEANINGS for one year, and membership in the U. S. B. K. U. Let the list of members roll up to large proportions so that the officers may soon have a fund with which to begin aggressive work.

GLEANINGS FOUR MONTHS FREE.

We wish to extend our subscription-list by several thousand names during the next few months. As a help toward that end we offer the remainder of the year 1897 for 25 cts. To those who send early we will mail the two August numbers, as long as we have a supply, as well as the remaining four months of this year. Will not many of our readers bring this offer to the attention of their neighbor bee-keepers who are not taking GLEANINGS? As an inducement to you to do so we make the following liberal offer:



ROOT'S HOME REPAIRING OUTFIT NO. 2.

We sold this outfit for years at $2.00, and that is still the list price, and price at which it is usually sold. About a year and a half ago we reduced the price to $1.50, and again last spring we made it $1.35. We have quite a number of these outfits on hand which we desire to get into your hands where you can make them valuable in various kinds of mending. We will furnish one of these outfits, together with GLEANINGS for the rest of this year, for the price of the outfit alone—$1.35. Now, if you can induce your neighbor to accept the offer above, put $1.10 with the 25 cents he gives you, and send to us and we will ship you one of the outfits. If you wish to renew your own subscription at the same time, send us $2.25 for GLEANINGS one year, to yourself the rest of this year (4 or 5 months) to a new subscriber, and the No. 2 repairing outfit. Or if you can not secure the new name we will send the outfit, with GLEANINGS one year, for $2.00, the price you would ordinarily pay for the outfit alone. Please remember that, if you are in arrears on your subscription, all arrears should be sent in addition, as this special offer is made for subscriptions paid fully in advance.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

SWEET CLOVER.

With the low price on clovers of all kinds, especially with crimson clover at only $2.75 per bushel, we are going to be able to make a little better price on sweet clover; but as the crop is not yet gathered and hulled, it is a little difficult to say where the price will settle; but if you will write us what you want we can give you a special price which we think would be satisfactory.

GARDENING IN THE MIDDLE OF AUGUST.

You can sow beets for table use. Celery may be put out on very rich soil, where plenty of water is at hand. Grand Rapids lettuce should be started where you have a fall market, and youmay establish a fall market in almost any locality. Now is just the best time to sow winter or Egyptian onion-sets. Put them in drills 2 feet apart, and 5 or 6 inches apart in the row. We have a splendid lot of sets just being gathered. Quart, 5c; pk., 35c; bu., $1.00; 10 or more bu., 75c per bu. For description, send for our leaflet on growing onions to bunch up. You can sow all kinds of radishes, but don't forget the Chinese Rose Winter. It is one of the very finest, both in appearance and quality, especially for fall use. Spinach sown now will be ready to market this fall, and will probably not run up to seed before cold weather stops it; and, with a little protection, it can be wintered over outdoors. Purple-top White-globe turnips will be quite large enough for table use if put in at once. Whittaker onions, White Multiplier, and American Pearl, will need to be put in as soon as the farmers are sowing wheat; but now is the time to get your ground ready, and order your sets of onions so as to have them on hand in time

Last, but not least, this is the best month in the whole year to put out potted strawberry-plants with the view of getting a crop next season.

SEED POTATOES.

At present writing, Aug. 11, no one can tell what potatoes for seed are going to be worth the coming season As eating-potatoes are worth 75 cts. to $1.00 a bushel in most of our large cities, the prospect is that seed potatoes are not going to be very much cheaper. If you wish to send in your orders we will make the price as low as that of any other responsible potato-dealer.

NICK OHMER STRAWBERRY-PLANTS.

Orders are so far ahead for these that we can not take any more at less than 25 cts. each. This is for potted transplanted plants postpaid by mail.

CONVENTION NOTICE.

MR. EDITOR:—The next annual convention of the United States Bee-keepers' Union will be held, in the main hall of Caton's Business College, corner of Main and Huron Sts., Buffalo, N. Y., commencing at 10 o'clock A. M., August 24th next, and closing on the afternoon of the 26th.

Those going to the convention should buy round-trip tickets to the Grand Army of the Republic encampment (not to the United States bee-keepers' convention), which meets in Buffalo during the last week of August. The G. A. R. have secured a rate of one cent a mile each way in the territory of the Central Passenger Committee, which is included by Toronto, Canada, thence on a line to Port Huron, Mich.; all of the southern peninsula of Mich.; Chicago, Peoria, and Quincy, Ill.; St. Louis, Mo.; Louisville, Ky., and Pittsburg, Pa. The Western Passenger Association and the Trunk Line Association make a rate of one fare for the round trip in their territory to places in the Central Passenger Association from which points the fare will be one cent a mile each way; but tickets must be purchased to Buffalo from the starting-point

A. B. MASON, Sec., Station B, Toledo, Ohio.

The semi-annual meeting and picnic of the Seneca Co. Bee-keepers' Association will be held at Elm Beach, 2 miles east of Hayt's Corners, Tuesday, Aug. 31. The meeting will be opened at 10 o'clock A. M. E. R. Root will be present and participate in the discussions. A yacht has been engaged for the occasion; in fact, no pains will be spared to make this a profitable and enjoyable day. C. B. HOWARD, Sec'y, Romulus, N. Y.

The third annual meeting of the Southern Minnesota Bee-keepers' Association will be held in Winona, on Wednesday and Thursday, September 15 and 16, 1897, opening at 9 A. M. each day. All are cordially invited to come and bring their friends. E. C. CORNWELL, Sec'y.

Second-hand Bicycles in Trade for Honey or Beeswax.

One Oronoco '97 gent's wheel, list price $75.00, 24-in. frame, single-tube tires, steel handle-bars, 68 gear, decorated and finished in pea green, almost new, that we will sell for $23.00. Will take honey or beeswax in trade at market prices. Also one girl's wheel, 24-inch wheels, cushion tires, for $3.50.

THE A. I. ROOT CO., Medina, Ohio.

HONEY-JARS, One-pound, sq. flint-glass, $4.50 per gross, with corks.

LABELS, 60 cts. per gross.

Cartons, shipping-cases, and everything in the apiarian line. Catalog free.

ITALIAN QUEENS, 60 cents each.

Apiary, Glen Cove, L. I. **I. J. STRINGHAM, 105 Park Pl., N. Y. City.**

QUEENS, Either 3 or 5 banded, 60 cents each; 6 for $3.00 Nuclei and supplies cheap.
CHAS. H. THIES, Steeleville. Ill.

STRONG COLONIES of hybrid bees in Root's Simplicity hives—good and healthy—for $3.00, during August and September. H. M. MOYER, Shanesville, Berks Co., Pa.

FOR SALE. — Large American fruit - evaporator cheap. EZRA G. SMITH, Manchester, N. Y.

Requeen, Requeen, Requeen.

Now is the time; queens are cheap.

Best untested Italians, 50c, $6.00 per doz.; tested, 75c, $9.00 per doz. These are "Shaw queens." Try them. Every one knows they are good as the best. Orders filled by return mail, and satisfaction guaranteed,

J. W. K. SHAW & CO., LOREAUVILLE, LA.

Please mention this paper.

CENTRAL PENNSYLVANIA BEE - KEEPERS! Buy your supplies near home. **Glass Observatory hives,** winter cases, etc. Send for catalogs.
Prothers & Arnold, Du Bois, Pa.

No cheap Queens to sell; but the best.

Golden 5 band, or 3 band from imported mother. Untested, 75 cts.; tested, $1.00.

L. BEAUCHAMP, Box 613, San Antonio, Texas.

Queens, Either Golden or Imported, by return mail. Untested, 75c; Tested, $1; Breeders, $2.
W. H. LAWS, - Lavaca, Ark.

Italian Queens, either golden beauties or 3-banded imported stock. Tested, 90c each; untested, 55c each; 6 for $3.00. One sample queen to new customer, 50c; breeders, $2.00 to $3.50 each. P. O. M. O. office, Lavaca. **E. A. SEELEY, Bloomer, Ark.**

UNTESTED ITALIAN QUEENS, for the balance of this season, 45c; tested, 75c; select tested, $1.50 each. Sweet-clover seed cheap. Send for circular to
W. J. FOREHAND, Fort Deposit, Ala.

Golden, Adel, Albino. **Texas Queens.**

Dr. Gallup says they are the best he has in his yard.

J. D. GIVENS, Lisbon, Texas.

GERMAN CARP WANTED.

1000 this year's; 100 or more last year's. Prices must be reasonable. Send offers to
DR. WM. MOERSHEL, Homestead, Iowa.
Carp to be shipped in August or September.

Wants and Exchange Department.

WANTED.—To exchange 16-section non-drip cases at Root's prices, laid down at your station, for fancy comb honey at prices to suit the times. Also second-hand 60 lb. cans, 2 in a case, valued at 25 cts. per can, freight paid, for gilt-edged extracted honey.
B. WALKER, Evart, Mich.

WANTED.—A location for a custom saw and feed mill. W. S. AMMON, Reading, Pa.

WANTED.—To exchange for extracted honey, 100 4-frame hives, new; one fine lot in Fort Worth, Texas; queens, Leghorn chickens. A bargain. Write quick. G. ROUTZAHN, Menallen, Pa.

WANTED.—To exchange 140 colonies of bees, with all fixtures belonging to a first-class apiary, for good horses and mules.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange So. Omaha lot, value $450, for gasoline-engine, lathes, or other machinists' tools, comb or extracted honey, or bees in Hoffman frames. A. W. DUDLEY,
915 Locust St., St. Louis, Mo.

WANTED.—To exchange Belgian hares, homing pigeons, White Leghorn eggs, or breeding-stock, for Italian queens from imported mother, pure-bred geese, ducks, ducks' eggs, or offers.
EUGENE MANNING, Jacksonville, N. Y.

THE S. & H. CO.
desire to enter into correspondence with all contemplating the purchase of anything in their line. They think they have one of the most complete assortments of strong, smooth, healthy,

FRUIT AND ORNAMENTAL TREES

Small Fruits, Vines, Shrubs, Roses, Bulbs, Hardy Herbaceous Plants, Greenhouse Stock, Etc., on the market and invite all buyers to come and see for themselves. They are to be found at the old stand where they have labored faithfully for the past 43 years to build up a reputable business. Catalogues free.

Address **THE STORRS & HARRISON CO., Box 8, Painesville, O.**

Ajax Bicycles.

Price only $35.

We have sold a large number of these bicycles, and they are giving universal satisfaction. For instance, the following letters will explain:

"The Ajax bicycle arrived Saturday in good condition. It is entirely satisfactory in every respect. It is a handsome and easy-running wheel, and has the appearance of one put up for service. Frank Wright.
"Laporte, Mich., June 28, 1897."

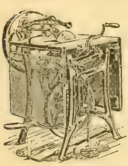
"The Ajax wheel, Model 37, with baby-carrier (Kalamazoo) came all right, and it is really better than I expected; although I have learned that when The A. I. Root Co. say a thing is first-class it is as represented.
"Thos. M. Todd.
"Payson, Utah, July 8."

We have so much confidence in these wheels that three of them have been and are now in use in the Root firm; and E. R. Root expects to make his bicycle-tour on one of these through the East this summer. They are up to date, have large tubing, wooden reversible handle-bars. Morgan & Wright double-tube and single-tube tires, with option of gearing and option of height of frames, and a choice of finish.

We will sell these wheels and take in trade beeswax or first-quality honey at market prices. We have only a few in stock; and after those we have on hand are gone we will not dispose of more in trade.

A beautiful catalog, showing these wheels up in full, sent on application.

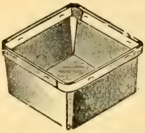
THE A. I. ROOT CO.,
Medina, Ohio.



One Man with the
UNION COMBINATION SAW
Can do the work of four men using hand tools in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging Up, Jointing Stuff, etc. Full line of Foot and Hand Power Machinery. *Sold on trial. Catalog free.* 1-24ei

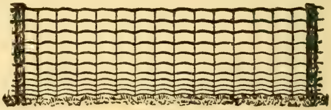
Seneca Falls Mfg. Co.,
44 Water St., Seneca Falls, N. Y.

Fruit Packages of All Kinds,
also
Bee-keepers' Supplies.



Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX CO.,
Berlin Heights, Erie Co., Ohio.



A Fence Not Made By Hand.

The average farmer can not afford to indulge in hand made fence, nor hand painted pictures. Even if he does the work himself, a "botch" and a "daub" will likely be the result, while the **time** consumed, if properly applied in his regular business, would provide means for beautiful photographs, engravings, etc., and lots of the "old, reliable" Page fence.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich

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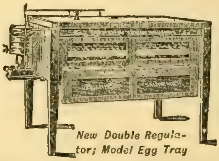
AT REASONABLE RATES
By J. A. OSBORNE & CO.,
PATENT LAWYERS,
579 The Arcade, CLEVELAND, O.
CALL OR WRITE. ADVICE FREE.

Do You Want An Incubator?

An Honest Machine, Honestly Built,



New Double Regulator; Model Egg Tray

Sold Under a Positive Guarantee.

"NEW AMERICAN."
Want Our Catalogue?
It's a pretty book of 68 pages, finely illustrated; worth dollars to every poultryman. A 2c stamp gets it.
GEO. J. NISSLY, SALINE, MICH.

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Honey Column.

CITY MARKETS.

NEW YORK.—Comb honey.—Our market does not open up until about September 1st, and we can not say as yet just how prices will rule. Still, it is our opinion that they will rule about the same as last year, viz., 12@13 for fancy white and 10@12 for off grades, 9@10 for buckwheat. Extracted.—California is selling well on account of low prices. Arrivals are heavy. Southern is beginning to drag, and quotations have to be shaded in order to effect sales in quantity lots. We quote California white, 5@5½; light amber, 4½@4¾; Southern, common, 50c gal.; better grades, 52½@55c gal. Beeswax steady at unchanged prices.

HILDRETH BROS. & SEGELKEN,
Aug. 21. 120-122 W. Broadway, New York.

MILWAUKEE.—Honey market quiet, and values are almost nominal, as the demand is not very much. The receipts are fair, and the supply very good. We hope to sustain paying market values, but just now sales are slow, yet believe with the general revival of business interests the sweet will not suffer. White No. 1 12@13; common, 8@11; extracted white, in barrels, 5@5½; in kegs and pails, 5½@6; dark, in barrels, 4@4½; beeswax, 26@28.

A. V. BISHOP & Co.,
Aug. 21. Milwaukee, Wis.

BOSTON.—The demand for both comb and extracted honey is still light, owing largely to the warm weather. We quote fancy white 1-lb. cartons at 14; No. 1 white, 13; light amber, 11@12; white extracted, 7; light amber, 6; amber, 5; beeswax, 27, and wanted.

BLAKE, SCOTT & LEE,
Aug. 21. Boston, Mass.

CHICAGO.—There is a little white comb honey selling, and chiefly at 12c, while some will not bring this price owing to improper filling and crooked combs. Extracted without much change, and slow of sale. White, 5@6; amber, 4@5; dark, 3½, some selling at less; beeswax, 26@27, and quick sale.

R. A. BURNETT & Co.,
Aug. 24. 163 South Water St., Chicago, Ill.

ALBANY.—There is but little to report about our honey market at present. The old stock of comb honey is nearly cleaned up, and not enough new in yet to determine prices it will start off at, and quotations would be merely fictitious.

CHAS. MCCULLOCH & Co.,
Aug. 10. Albany, N. Y.

CINCINNATI.—No change since our last. Demand is good for comb and extracted honey, with a good supply. We quote choice white comb honey at 11@13, while the range of prices for extracted honey is 3½@6, according to quality. There is a fair demand for beeswax at 20@25 for good to choice yellow, with fair arrivals.

CHAS. F. MUTH & SON,
Aug. 21. Cincinnati, O.

DENVER.—There is no material change in our honey market; it is very quiet. Fancy white, 11; No. 1 white, 10; No. 1 extracted white, 5. We are hoping for better trade after Sept. 1.

R. K. & J. C. FRISBEE,
Aug. 23. Lock box 1014, Denver, Col.

KANSAS CITY.—The demand for honey has been very light the last two months, but is improving now. We look for good trade. We quote fancy 1-lb. comb white, 12@13; No. 1, 11@12; fancy amber, 10@11; No. 1 amber, 9@12; fancy dark, 8@9; No. 1 dark, 7@8; extracted white, 5@5½; amber, 4@4½; dark, 3½@4; beeswax, 22@25.

C. C. CLEMONS & Co.,
Aug. 21. Kansas City, Mo.

NEW YORK.—New comb honey arriving in small lots. Trade rather quiet, as our market opens about September 1st. We quote State white-clover fancy comb at 12½@13; poor to prime, 10@12. Extracted honey arriving in plenty; some trade, but not much activity. We quote California extracted white at 5@5½; light amber, 4½@5; New York State white clover, 4½@5½; New York State buckwheat, 3½@4; Southern, in bulk, per gal., 50@75.

FRANCIS H. LEGGETT & Co.,
Aug. 19. Franklin and Varick Sts., New York.

PHILADELPHIA.—Honey arriving freely, and some demand springing up. We quote fancy comb at 13½; No. 1 white, 12; extracted buckwheat, 4; white, 5½; amber, 4½@5. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
Aug. 24. 10 Vine St., Philadelphia, Pa.

MINNEAPOLIS.—Fair demand for fancy clover white at 10@12, possibly fraction more. Other grades accordingly. Best extracted at 5@5¾.

S. H. HALL & Co.,
Aug. 23. Minneapolis, Minn.

COLUMBUS.—Fancy white clover, 12½; No. 1, 11. Local market is pretty well supplied by farmers who are now drawing some of their crop each day. We look for an increased demand by September 1st, but no increase in prices. Present supply is light.

THE COLUMBUS COMMISSION & STORAGE CO.,
Aug. 21. 409-413 N. High St., Columbus, O.

DETROIT.—Comb honey, fancy white, 10@11½; extracted, 5@5½; beeswax, 25@26.

Aug. 21. M. H. HUNT, Bell Branch, Mich.

FOR SALE.—25 bbls. extracted pure white-clover honey, very light in color, and of finest quality, at prices as cheap as the cheapest, quality of goods considered. Can put it up in any style of package. Write for price, stating quantity desired.

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—A lot of good extracted clover honey in 60-lb. cans. JNO. A. THORNTON, Lima, Ills.

WANTED.—To buy quantity lots of fancy comb honey in non-drip cases. B. WALKER, Evart, Mich.

WANTED.—To buy for cash, comb and extracted buckwheat honey; also white clover extracted or amber. F. W. DEAN, New Milford, Pa.

If You Want Queens
By Return Mail,

Bred in full colonies, from the very best honey-gathering strains in America, crossed with drones from a different mother to avoid inbreeding, send in your orders at once.

Tested, - - - each $1.50.
Warranted purely mated, each .75.
" " " 1-2 doz. 4.00.
" " " 1 doz. 7.00.
Untested, - - - each .65.
" - - - - 1-2 doz. 3.50.
" - - - - 1 doz. 6.50.

Send for 37th Annual Descriptive catalog. Full line of Bee-keepers' Supplies. Address

W. W. CARY, Colrain, Mass.

CHAS. ISRAEL & BROS.,
486, 488 & 490 Canal St., Corner Watts St., N. Y

LIBERAL ADVANCES MADE ON CONSIGNMENTS.

HONEY
—AND—
BEESWAX.

WHOLESALE DEALERS & COMMISSION MERCHANTS. Established 18.5

QUEENS, Either 3 or 5 banded, 60 cents each; 6 for $3.00 Nuclei and supplies cheap.
CHAS. H. THIES, Steeleville. Ill.

A Tested Queen and the Review for $1.50.

I have a large number of nuclei containing fine tested Italian queens of this year's rearing, and have decided to use them in helping to build up the circulation of the **Review**; hence offer a queen and the **Review** one year to *new* subscribers for only $1.50. **Review** alone, $1.00; queen alone, $1.00. If several queens are wanted, write, and the price will be made according to the number. As a rule, orders are filled by return mail, and there is never a delay of more than three or four days, and that on large orders.

W. Z. HUTCHINSON, Flint, Mich.

Honey Leaflet

Dr. C. C. Miller.

Why honey is more wholesome than cane sugar.

Honey as an article of diet; honey cooking recipes.

This leaflet is written for the benefit of consumers, and is put out at an extremely low price so that honey-producers may distribute them free to their customers. Prices: 10, 5c; 100, 20c; 500, 75c, all postpaid; 1000, 75c, carriage extra.

The A. I. Root Co., Medina, O.

Philadelphia Office of

THE A. I. ROOT CO.,

10 Vine St., Philadelphia, Penn.

Now is the time to order

Shipping-cases, Winter Cases, Chaff Division-boards, etc., etc.

Order from catalog; prices are same as from factory.

Shipping-cases.

Root's popular Non-drip Shipping-cases at factory prices at DES MOINES, IOWA. Immense stock. All orders for cases or other goods shipped by return freight now. Address

JOS. NYSEWANDER, Des Moines, Iowa.

PRICES OF

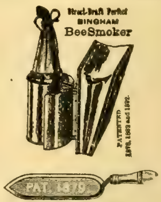
Bingham Perfect Bee-smokers and Honey-knives.

Smoke Engine (largest smoker made.)	4-inch stove.	Doz.	$13.00;	each, by mail,	$1.50
Doctor	3½-in.	"	9.00;	"	1.10
Conqueror	3-in.	"	6.50;	"	1.00
Large	2½-in.	"	5.00;	"	.90
Plain	2-in.	"	4.75;	"	.70
Little Wonder (wt. 10 oz.)	2-in.	"	4.50;	"	.60
Honey-knife		"	6.00;	"	.80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.
January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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4 Months' Trial Trip for 25c.

The weekly **American Bee Journal** would be a great help to you in your work with the bees. Better have it the last four months of 1897 for only 25 cents, if you are not already a subscriber.

The Buffalo Convention Report will be published in the Bee Journal *in full*, right after the meeting, beginning early in September. That report alone will be worth many times the 25 cts. Send for free sample copy, anyway. Address

GEO. W. YORK & CO., 118 Michigan St., Chicago, Ill.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

Published by The A. I. Root Co. $1.00 per Year Medina, Ohio.

Vol. XXV. SEPT. 1, 1897. No. 17.

STRAY STRAWS

FROM DR. C. C. MILLER.

ON THE MORNING of August 18 I saw a bee here and there on buckwheat, with the thermometer at 58°. At 61° the bees were thick on it.

J. A. BUCHANAN, p. 589, has customers who always eat a dollar's worth of honey before it candies. Now, is that because his customers are so fast at eating, or because his honey is so slow at candying? [Probably both.—ED.]

A MANUFACTORY of printers' rollers informs me that they use a considerable quantity of extracted honey in their business, but require the pure article, and prefer white clover or basswood. Under no conditions will buckwheat honey do.

IS IT NOT just a little inconsistent to charge with hostility, and trying to get the funds of the old Union, those who have advocated amalgamation? Why, I think most of them are members thereof, and one is not generally hostile to himself.

THE GROOVED BELLOWS-BOARDS for smokers will allow the use of a lighter spring, making it much easier on the muscles of the hand. [That is so. I never thought of it. For 1898 we will bear the fact in mind, and endeavor to have the tension of the springs slightly reduced.—ED.]

IT'S SURPRISING, considering the times and all the circumstances, that the new Union should already have a membership of 175, with a still continued up-grade tendency. [The new Union is growing at an astonishingly rapid rate. If it keeps on growing it will soon be bigger than its elder sister.—ED.]

SMOKER FUEL, like so many other things in bee-keeping, is somewhat a matter of "location." It isn't so much what is best as what is most convenient. One of the most generally convenient, and at the same time one of the best, is the small chips about any woodpile. For a sharp, telling smoke, lasting as well, I know nothing better than sound osage-orange wood.

WITHIN TWO RODS of my home apiary is a field of buckwheat on which bees have been working some days. They work a short time early in the day, but I can see no buckwheat honey in the hives, neither is there any buckwheat smell either about the hives or in the field until this morning, Aug. 18, when the air about the field is well perfumed.

FALL HONEY is usually darker than the earlier; but at my south apiary this year, and to some extent last, the rule is reversed. For two or three weeks the bees have been filling sections with the whitest comb and honey, I think, I ever saw—much whiter than clover, and of excellent flavor, as mild as alfalfa. The sad part of it is, I haven't the slightest idea what it comes from.

"IN AN APPLE ORCHARD where the trees are so large and the branches so long that the twigs can shake hands with one another is an ideal spot for an apiary."—*Bee-keepers' Review.* Just the idea, and nicely expressed, W. Z. But my south apiary has something I like even better—a grove of young burr-oaks. No, burr-combs are no worse there than in the other apiaries.

THAT ITEM, "Big Colonies, Again," p. 604, gives something to think over. With two stories I can have whopping big colonies that store enormously in combs and never think of swarming; but somehow I can't make a success of having them work in sections. Is it possible that I can make the thing go by first starting them on extracting-combs and then switching off on to sections? Just wait till next year.

I WANT TO INDORSE what you say, friend A. I., page 607, about giving young folks plenty of sleep. The time gained in 24 hours by taking it from sleep will have to be paid back in later years with interest severely compounded. And when one gets on the shady side of 50, I know of nothing more refreshing than "tired nature's sweet restorer, balmy sleep." As Sancho Panza said, "Blest be the man that invented sleep!"

WORKERS reared in drone-cells, as mentioned by Elias Fox, p. 599, is a more common occurrence than generally supposed. More than 20 years ago I saw workers hatch from drone-cells in a piece of comb sent by R. R. Murphy to the *American Bee Journal*. The queen may control the sex of the egg by her will; but the case you cite is no proof of it, friend Fox, for I think you will find that, before the queen laid in the cells, the workers laid a heavy rim of wax, making the mouth of the cell as small as that of a worker-cell.

IT ISN'T EASY to get up any rules for grading that will be satisfactory. Too much wording is bad, but too little may be worse. Editor Hutchinson wants every thing short and simple, but on the same page says he "would not have any pollen in a fancy grade of honey, and not more than half a dozen cells in a section of the second grade." Now, how are you going to have any thing of that kind carried out unless it is "so nominated in the bond"? [If the Buffalo convention does not adopt some set of rules, I propose to adopt something for GLEANINGS. The grading-rules that we have been using till lately were, as I understand, far better than nothing. But I believe I can improve on them after all that has been said and written, and I shall certainly make the attempt if the Buffalo meeting does nothing.—ED.]

LOOK HERE, Ernest; those glucose-men are not fools, but sharp business men. No matter how solid the trust, they're not going to put the price where it will prohibit the use of glucose as an adulterant. Not the greatest profit per pound, but the greatest aggregate profit is what they're after, and that depends on the great amount sold rather than on the price per pound. [Yes, I am well aware that the glucose-men are shrewd; but sometimes shrewdness gives place to folly, and I was in hopes they might be so very "smart" that they would put the price of glucose up high enough so it would not make such inroads on honey. The very object of the trust is to put up the price; and even if they shove the price up only a little bit it will make it just that much less profitable to put it into honey. Extracted honey is coming down, or has been; and if glucose goes up, there will be less adulteration than formerly.—Ed.]

WOULDN'T I LIKE to have been at that picnic of the Root employees! A number of nice people among them I'd like to see again. Say, Ernest, why don't you give us a picture of them? [Yes, indeed, and we would have counted you as one of us. We made up a train of seven coaches and a baggage-car. On either side of the train was a mammoth sign, painted on canvas, with the wording, "The A. I. Root Co. Employees;" and on the pilot of the locomotive was a beautiful yellow queen-bee carved out of wood, about a yard long, with wings spread, ready to lead our big swarm in its flight to pastures new. The carving was done by Mr. Karl R. Mathey, who is still in our employ. The queen was richly painted, and decorated in gold. If she had not been such an awkward thing to carry we would have taken her to the Buffalo convention, and had her suspended in midair in the convention room.

Well, the picnic was a grand success in every way. Nearly every seat in the train was filled with people, the great majority of whom were those who receive their bread and butter from the A. I. Root Co.'s pay-roll. Just before the train started I had the ever-ready Kodak; and after I had taken several shots the conductor called out, "All aboard!" and the train soon steamed into Cleveland. Arriving there we all piled into a lake steamer, and after an hour's ride we found ourselves at Euclid Beach Park.

We expect to make this shop picnic an annual affair. Ere another year rolls by we shall hope that Dr. Miller and a good many more of our bee-keeping friends will accompany us to some beautiful spot in fair Ohio.—ED.]

DRAWN FOUNDATION doesn't show the advantage I expected over ordinary foundation. As to eating qualities it's all right, and I can't help thinking that the war that has been waged against it without knowing any thing about it is the maddest, blindest, silliest piece of folly that has occurred in the ranks of bee-keepers for some time. [There is only one other besides friend Doolittle (see editorials) who has reported the eating quality of honey from drawn foundation as not being equal to that of the ordinary comb honey. While I do not in the least doubt Mr. Doolittle's statement, I believe that, in the great majority of instances, the eating quality of the new product will be up to the required standard. It certainly has been in our own various tests at Medina, and with Dr. Mason.

You and Mr. Doolittle probably tried the drawn foundation and common foundation in alternation, as we advised. We have since discovered that this is hardly a fair test. Half of the supers should be filled with one kind, and the other half with the other sort. When the two lots are placed in alternation, the bees seem to feel that the foundation must first be pulled out to equal the drawn foundation; for it is contrary to their notions of hive architecture to have every other comb in the super or hive drawn out and the others neglected. They must all be drawn out in one portion of the hive, at least, together. We have found it to be true that, when the pieces were placed in alternation, in some instances there was no practical difference; but when the super was divided in halves, there was a difference in favor of the drawn foundation, the latter being accepted and filled with honey, while the common foundation in the other half was almost neglected. For instance, before me is a super that had been prepared in "halfs," as above explained. The sections of one outside row, having had foundation in them, show the following weights after the season was closed and the weight of sections when removed from the hive: 1 oz., 4 oz., 7¼ oz., 7¾ oz. The sections in the opposite outside row had drawn foundation. These are the respective weights: 12½ oz., 13½ oz., 13¾ oz., 13½ oz. The other sections having the drawn foundation were finished sooner, and are fatter and heavier than the corresponding sections from common foundation. In relation to the same point, R. F. Holtermann, of the *Canadian Bee Journal*, writes: "My own test of the deep cell goes to show they accept it much more readily than other foundations. I put one section in the far corner of the hive where they are less likely to fill it, and this was built out much farther than the sections near the center. They take next best to the 11-square-feet-to-the-pound new process."—Ed.]

THE BEE-KEEPERS' UNION, ONCE MORE.

An Interesting and Valuable Article.

BY PROF. A. J. COOK.

I am reluctant to speak further upon the above subject; but Mr. Newman's letter in July 1st Gleanings, and the importance of the subject, impel me to a further word.

I am very sorry if I misquoted Mr. Newman, and even more sorry if I misrepresented him. I have had high appreciation of his services, and have had only the kindest feelings regarding him. I am sure I need not say that any thought of antagonism to him has never been in my mind.

HISTORY.

In the last vote, I believed (and I think many others did) that we were voting only on the question of amalgamation. I voted no — not that I was opposed to amalgamation *per se*, but only because I felt that many of the members were, and that we should not force the change upon them. It seems to me to-day that this was a correct position. Others thought the Union should not be tied to the National Association, or at least that such a marriage would not be wise, and hence the large vote against amalgamation. I did not suppose the failure to amalgamate would result in the formation of two Unions; but, the rather, if the marriage was not consummated, the old Union would lock horns with adulteration—would hitch on its whole force to aid co-operation, and would eagerly grasp any lever that would help to raise bee-keeping to a higher plane of success.

THE STATUS TO-DAY.

Amalgamation was lost. We have two organizations, kindred in their general plan and make-up, requiring the same machinery for their work — the one tied, possibly by vote of its members, though I am not sure of that, but certainly by the views of its manager, to one limited, and, as it seems to me, rather unimportant line of work at the present time; the other, ready to attack any evil that really threatens the life or welfare of our industry. What a chance the old Union is losing now in not marching against adulteration here in California, where every thing would favor success! We have a good law, manager on the ground, and public sentiment all on our side. We could almost certainly have won a grand success, and secured a precedent that would have been as powerful for good as the Arkansas court decision gained previously by the Union. It seems to me that, in case we could not constitutionally grapple with this foe at this opportune time, we should have taken steps at once to secure the right and power to do so.

THE FUTURE.

I fully believe that we can afford but one organization. This seems so axiomatic to me that I believe the bee-keepers generally will concur. As the new Union seems more broad in its scope, more alive to the needs of bee-keepers, more ready to attack the enemy in whatever form he may take, I believe it wise to merge the old Union into the new. So far as I have heard expression, this seems the growing opinion.

I wish I could be at Buffalo to join in a calm, dispassionate consideration of the whole subject. Surely, the discussion should come, and the matter of a second submission to vote be carefully weighed. I presume a large number of the members, and a goodly proportion of the officers of the old Union, will be present, and I hope that they will make themselves heard.

CO-OPERATION.

Southern California is now struggling with the subject of a "Bee-keepers' Exchange." The organization is on foot. A goodly number of bee-keepers have joined its ranks, and it has already done good service in securing to its members reduced prices on their supplies. It now remains to be seen whether it will be able to secure a better market than could have been had if it had not been formed. We hope and believe it will succeed in this respect, and, what is quite as important, that it will be able to convince bee-keepers, whether in or out of the association, that it has done so. Apparent as well as real success is needed. The "Citrus Fruit Exchange" proves conclusively that co-operation is the greatest need of agriculturists in all lines. It is almost universally admitted that the "Fruit Exchange" has been a signal success, and a great boon to the pomology of Southern California; and yet this important organization has been handicapped because so many held aloof. Farmers are all unused to such methods; are suspicious of them, and will not easily be convinced that they are necessary, safe, and desirable. Will bee-keepers be any more ready to co-operate? I have had great hopes of the bee-keepers, as I think they are a very intelligent class; they nearly all read and think, and it would seem that most have had experience that would lead them to think favorably of co-operation. Such methods promise immense advantage, and so are sure to come in time. Just how soon is a very important question. The success of the Fruit Exchange has resulted in far better grading and packing, at a reduced expense; has lessened cost of transportation; has secured better prices, and, perhaps, best of all, has developed new markets, and arranged such intelligent distribution that any single market is seldom glutted because of a rush of fruit into it. Such a rush into New York or Chicago is ruinous to prices the country over. I believe a good bee-keepers' exchange could accomplish as much. I hope and believe that the time will soon come when the bee-men and fruit-men will unite forces, for the agents east could as well develop a market for both commodities as for one, and at the same time.

One of the chief objections to such a system is the fact that many are poor, and need ready money before the close of the season, and can realize on a prospective crop with a local dealer. The Bee-keepers' Exchange has arranged, as we are informed, to partially remedy this evil this season; and it is certain that, to realize on a coming crop in the usual fashion, is always very expensive. Such loans are secured at an enormous interest. I believe we all ought to write, talk, and work for the exchange system. Such methods in rural pursuits are so new and strange that we must patiently await their development. Perfection can not come at once. Mistakes must be made. The greatest difficulty is to find able, experienced business men who will work unselfishly and earnestly for the Exchange. The fruit-men are succeeding in this, we think, and are winning a success that is fast gaining the confidence of the fruit-growers. Their success will bring confidence to the bee-keepers as well. We believe that the bee-keepers here have been very fortunate in their choice of men to man the Exchange. We hope that the bee-keepers will rally more and more to its support.

NOTES.

I was interested in the note in Aug. 1st GLEANINGS regarding color of queens, drones, and workers. We have selected simply for color in workers, and hence the want of uniformity in the color of queens and drones. If it is necessary we can soon breed to uniformity in queen and drones; but is it? I have always believed that color in workers should be considered secondary in importance. The main thing is to develop a business bee, and color should be considered only to gratify a love of the beautiful, and to aid us to secure a proper label.

I agree with you regarding glucose. While possibly "vile stuff" may be too strong, yet an article that is often unwholesome, that is almost always used for evil purpose, and that actually injures many of our staple articles of commerce, should certainly be denounced. The editor of the Los Angeles *Times*, in to-day's issue, speaks of a new "glucose-factory," and adds that means more honey (?), pure (?) syrup, etc. The real character and standing of glucose is everywhere well known. There is no need of our speaking its praise or defending its character.

The article of Mr. Sladen, on *Apis dorsata*, is excellent. I am surprised that its tongue is so little longer than that of the *A. mellifica*. Its size is certainly against it. The larger insects are always more logy and inactive. Our common bees are surely about typical in size among insects. It is more than likely that *A. dorsata* would be a failure with us. This is why I have always urged that government should import it. I do not think private parties should be asked to undertake such enterprises as *may* bring signal advantage, but *usually* result in no improvement. We must keep trying to secure the occasional prize, like the navel orange; but the trials should be made by government, not by any one man. If individuals wish to do such work, well and good; but it is often unwise for government to wait for them. The same logic holds for experimental research, which all the most civilized governments now foster.

I was specially glad to read Mr. Doolittle's article on clipping queens' wings. I can remember when I was almost alone in its advocacy. There is another advantage not mentioned by Mr. Doolittle. An apiarist can leave his apiary at swarming time in the care of wife or child, and go to other work. The one in charge has only to cage the queen and note the hive; and when the bee-keeper comes at noon or night he can attend to the bees. I have often known farmers to manage quite large apiaries in this way.

It is gratifying to note that common advice and legal enactments now say, "*Never* spray until the blossoms fall." Recent discoveries regarding egg-laying by the codling-moth make the delayed spraying all the more reasonable. It is folly, aside from the bees, to spray before the blossoms have all fallen.

The article on page 493, regarding cane sugar, I think contains several errors. I wish it might be submitted to Dr. Wiley for a review. I think the cane sugar in the nectar, in the honey, on the table — everywhere — is the same, only in different form, just as the salt in the ocean and in the salt-dish are the same.

Long Beach, Cal., Aug. 5.

[The scheme of the California Bee-keepers' Exchange is most admirable, and should be most heartily encouraged. GLEANINGS will gladly do any thing that will help it along.

The new Bee-keepers' Union is progressing finely, and already has a membership of 175; and indications are that it will surpass in membership and funds the old Union. Whether it does or not, the old and the new should be combined—or, if you please, amalgamated. Economy and cool business sense both urge it. I am in hopes that the Buffalo meeting will produce a constitution that will be acceptable alike to the members of the old and new Union.

Regarding *Apis dorsata*, permit me to offer this suggestion: The A. I. Root Co. will be to no very great expense to start on, and may, for a very small sum, be able to secure dorsata. If it fails, then there will be time to advocate the use of Uncle Sam's money. We shall probably know within a year what we can do. I expect to make up this afternoon a list of hives and implements necessary to equip Mr. W. E. Rambo, so that he can properly test *Apis dorsata* and other species of Indian bees.

Regarding the article on cane sugar, p. 493, I respectfully submit it to its author. In the mean time I have sent a copy containing the article to Prof. Wiley himself.—ED.]

IMPORTANT ITEMS.

Pettit's System of Producing Comb Honey; Monnier's Cure for Bee-paralysis a Success.

BY EARL C. WALKER.

During the honey season which is just drawing to a close I have given Pettit's plan of taking comb honey a trial, in part. I consider the scheme of placing wedge-shaped pieces of wood under the sides of the hive, thus causing the bees to distribute themselves to the sides and back end of the hive, the most valuable feature of the system. By this means the bees with their loads of honey are sent directly to the outside sections, which will be filled as soon as those in the center of the super. Instead of sawing out wedge-shaped pieces of pine, as described by Mr. Pettit, I simply get some ordinary shingles, which taper down to a thin edge, and split them up into strips ⅞ inch wide. These are placed under the sides of the hives, as directed by Mr. Pettit. This not only causes the bees to fill the outside sections, but gives abundant ventilation, which is so necessary in the hot summer months. I had several colonies that seemed determined to hang out and loaf. I placed the strips of shingles under the edges of the hives, and the bees quit loafing, and went to work in the sections. One of these gave a surplus of 72 lbs. of comb honey. I will keep the strips under the hives until winter, for ventilation.

MONNIER'S CURE FOR BEE-PARALYSIS.

I have cured several cases of bee-paralysis this season by running healthy swarms into hives containing affected colonies. The healthy bees would at once attack the diseased ones, and carry them off. In most cases I let the diseased bees swarm, and then the next healthy swarm that issued I ran into the hive out of which the diseased swarm came. The diseased swarm I ran into a hive out of which a healthy swarm had issued. The disease has entirely disappeared. All that seems to be necessary is to mix a diseased and a healthy colony together, and the bees do the rest. The scheme of uniting diseased colonies to cure paralysis was given in GLEANINGS on page 447, and I used the above method of putting it into practice. All bee-men should try this cure, and report the result. Mr. Monnier, who discovered this, deserves a vote of thanks from all bee-keepers. When I read his article, I, like you, Mr. Editor, had my doubts about its being a certain cure. But I have tested it for myself, and am positive that it is a sure cure. Try it and see.

A COMMON MISTAKE IN TRANSFERRING.

A great many bee-books, in giving directions for transferring, advise the use of a driving-box of the same size as the box hive to be transferred. For example, Mr. F. Benton, in *The Honey-bee*, p. 72, says, "Invert the hive, and place over the open end an empty box, or the frame hive itself, making whichever is used *fit closely* on the hive (Fig. 53). He emphasizes the importance of having the driving-box fit closely, by a half-tone engraving. Now, I have transferred a great many bees, and I believe it is entirely unnecessary to have the driving-box fit snugly over the end of the box hive; in fact, if the weather is at all warm it is quite an advantage to have the driving-box some larger than the box hive. The bees run up into the driving-box more readily if it is large enough to project a few inches over the sides of the hive, thus giving plenty of ventilation.

THE HIGGINSVILLE COVER.

The Higginsville cover has not proven as satisfactory with me as the old flat cover used on the Dovetailed hive a few years ago. It warps, leaving a crack along the top edge of the hive where the cover and the hive-wall meet. Besides, it is too thin for winter where the bees are wintered in single-walled hives. The space left by the cover warping allows the escape of heat from the cluster, and this causes a draft through the hive. I have been testing the new gable cover, and so far find no fault with it. By using it, shade-boards can be dispensed with; and in the winter the space can be closed, thus making an air-space above the cluster.

New Albany, Ind.

[I wish others would try this new cure for bee-paralysis. The fact that it has worked successfully in two cases is very encouraging. —ED.]

REPORT ON TUNIS AS A HONEY-PRODUCING COUNTRY.

BY THOMAS B. BLOW.

[We take pleasure in presenting to our readers a portion of the report of Mr. Thomas B. Blow, of England, made to the Tunisian government, North Africa. The parts omitted refer to the size of frame best suited to that country, and the probable profits of the industry.—ED.]

To the Department of Agriculture, Regency of Tunis:—I have the honor to report that, during the past two months, I have given great attention to the question of apiculture in Tunis. So far as I have seen, there are certain parts of Tunis that are, in my opinion, absolutely without equal in any part of the world for their capacity to produce large quantities of honey. These districts are the hills, on which grow vast quantities of rosemary (*Rosmarinus officinalis*), heath (*Erica multiflora*), and many other honey-producing plants. Of such districts I imagine Tunis possesses some millions of hectares, and in the greater portion the honey is absolutely wasted for want of bees to collect it. Not only can honey be produced here in great quantity, but the quality is also superb; in fact, there can be no finer honey than that produced during the winter and spring months from the heath and the rosemary. The climate is well suited for apiculture, for the bees are able to work a great portion of the time that these plants are in flower (there being no winter in the sense we understand it in Europe). The heath and rosemary commence to bloom in November and December, and continue till March or April, and during these months the bee-keeper is assured of an ample harvest. Later comes

Calicotome villosa, *Thymus Numadicus*, and other species of *Thymus*, several species of *Cistus*, and many other honey-yielding plants; so that, in fact, there is a good harvest from November till May, which is quite a long period, especially when we consider the great abundance of the honey-yielding flowers during the whole time.

It must be borne in mind that every pound of honey collected is so much clear gain to the national wealth of a country; for, if not collected by bees, the honey is absolutely wasted. Fruit-growers and owners of almond-orchards should remember, too, that greatly increased crops of fruit are obtained if there are ample bees kept to insure efficient fertilization of the flowers.

The bees of Tunis are very hardy, good workers, and are all that can be desired for the country, and I strongly recommend that the introduction of foreign bees be not attempted; and in view of the fact that the bees here, so far as I have seen, are free from the disease called foul brood (which has caused, and is still causing, such havoc with the bees of Europe), I advise that the most stringent measures be taken to absolutely prohibit the importation of any foreign bees, as the risk of the disease being introduced thereby would be very great (it being very widespread in Europe).

The Chalet, Welwyn, England.

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WALKER'S GRADING-RULES CRITICISED.

The Rules too Flexible, and Why.

BY B. F. ONDERDONK.

Friend Root: — I have been reading Mr. Walker's grading-rules, and, after much thought and perplexity, have come to the conclusion that they do not grade. As I understand the word, "fancy" means appearing extra well. I fail to understand how a section with a row of unsealed cells next the wood can fill the requirement of "fancy," to say nothing about "extra fancy" allowing this defect; then his "fancy," "slightly fastened to or detached from the bottom," and "*two cells may contain bee-bread*" (italics mine). I grade his extra fancy for my own trade as No. 1; his fancy as No. 2, except as to the bee-bread, a section containing which I never offer for sale, but exclude it entirely from the grading.

Fancy, with me, must not have more than four unsealed cells on any one side of the comb, and unsoiled. No. 1 may have one row of cells next the wood unsealed. No. 2, one row of cells next the wood unsealed, and two or three rows at the bottom; no section to weigh less than 13 oz.; and very little amber honey in with white. No. 3, or fourth grade, may have two rows of unsealed cells, top and sides, bottom detached; and weight, 11 to 12 oz., goes to the peddler at 10 cts., regardless of color, comb, or honey. Lighter weights go back on the hives to finish if a flow is on, or clean out if bees need it.

Mr. Walker says, "No. 2 like No. 1, but combs may be more crooked and uneven (*sic*), and not over three-fourths filled; but any one section must weigh half as much as the heaviest section in the case." To say nothing about his supplementary, which would allow his sections to be shoveled in, and modifies previous elastic rules, it looks to me like a barrel of unsorted apples, and I do not wonder at commission men's returns for consignments of honey if these rules obtain to any great extent.

Your grading is good, except fancy, which should not admit the whole row of cells next the wood unsealed. No. 3 should not go on the market. It hurts the business, and gives the retailer too much show to "do" the consumer.

I did intend my letter as an order; but the way things are looking now, I am not sure but I shall need a barrel of sugar instead.

Mountain View, N. J., Aug. 11.

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APICULTURAL STATION OF THE MARYLAND AGRICULTURAL COLLEGE.

An Old Bee-keeper in Charge.

BY C. H. LAKE.

[A few weeks ago we received a letter from Mr. C. H. Lake in regard to an apiary that he had the pleasure of establishing at the Maryland Agricultural College and Experiment Station near Washington, D. C. At that time he promised to send us photos if we cared to have them. I told him to send them on and tell us something about the station and its plans. The photos are reproduced in half-tone on the opposite page. The station is located eight miles from Washington, on the Baltimore and Ohio Railroad, at College Park Station.—ED.]

Friend Root:—I send you under separate cover the photographs of the aviary and apiary of the Maryland Agricultural College, and I will give you at this writing as brief a description as possible.

No. 1 is the brooder-house of the aviary; incubator capacity at present, 1300 eggs. The gentleman on the left is the president and his two children. Next is Mr. Taylor, the poultryman, and his little son. The other is intended for "yours truly." The trees showing over the brooder-house are on the rear grounds of the president's cottage.

No. 2 takes you a little farther up the hill. Place it at the *left* of No. 1 and you will see how the ground lies. It takes in a large part of the poultry plant.

No. 3 (again placed on the *left*) is the apiary, looking north. It is unfinished, as I wrote you; and, while it makes but a small show, it is more extensive than it looks. The white building is the honey-house and workshop. The window of workshop is nearly hidden by the tree. This view cuts off about 75 feet of the extreme left from view.

No. 4 is a view of this part taken from the shop-window looking south. So much for the views. Now take the plan. The long line of hives on the extreme left are all of the Baltimore pattern for extracting, and will contain 80 hives, to be covered in, for both shade and shelter. Along the front and poultry side, or at *a* and *b*, there will be located 100 or more

MARYLAND EXPERIMENT STATION; THE AVIARY AND THE APIARY.

comb-honey hives of the 8 and 10 frame Dovetail patterns. This will leave the center grounds for nuclei, swarms, special hives, and test work.

What we propose to do, and how we shall go about it, I will not at this writing say; but the apiary is established, and your humble servant has been put at the head of both departments; and if I live I hope to see many a bee-crank (as well as poultry) who have been "over the ground" in the past.

Baltimore, Md.

RIETSCHE AND FACTORY FOUNDATION COMPARED AGAIN.

Which is the Cheaper for the Poor Man to Buy?

BY F. L. THOMPSON.

Mr. Editor : — Inclosed find a sample of foundation made on a Rietsche press. It is part of a sample which came in a letter from Herr Rietsche himself. I had not intended to say much more on this subject; but on reflection I conclude it is too important to be allowed to drop in its present stage.

In his letter Herr Rietsche says that, given the ability (to work the machine, I suppose), his press turns out the exact thickness, and consequently strength, of foundation desired for use in the brood-nest. For example, the smallest size, which is 22 by 17 centimeters (8.66 x 6.69 in.), makes 36 sheets of a kilo of wax, corresponding to a square surface of 1.35 meters. The size for the normal German frame (22x35 centimeters, longer dimension vertical) makes 14 sheets to the kilo, or 1.1 square meters ; a press 25 x 40 centimeters makes 9 or 10 sheets, or 9 to 1 meter; and so on, the larger the size the thicker the foundation, and conversely. Most bee-keepers, he says, are of the opinion that foundation should be no thinner than that proportion for the brood-chamber, and that, for the normal German frame, it is much better to make only 12 or 13 sheets to the kilo, instead of 14. Therefore, he concludes, home-made foundation is entirely fitted to the needs of the brood-nest, and makes the bee-keeper independent of the manufacturer, not to speak of the facts that he can use up his own pure wax, free from foul brood, and that he needs no artificial helps, such as wiring, etc., to get a beautiful comb built.

It appears from this, that, when one wants to wire his frames, he should specify the thinness of foundation he wants, as well as the size, in ordering ; otherwise he will get a machine making foundation thick enough to dispense with wire. Perhaps this was the reason the circular that came with your machine claimed no more for it than a square meter of foundation to a kilo of wax.

For myself I prefer wiring, for several reasons, and am not suspicious of the purity or cleanness of the foundation furnished by our dealers. I favor the consideration of the Rietsche press only because it saves money and is easy to operate.

The sample inclosed is stated to have been made on a press which makes sheets measuring 25 x 20 centimeters ; hence, if the above rule of proportionate thickness is exactly carried out I judge it is a trifle thicker than that made on the smallest press, which runs 1.35 meters to the kilo. Now, since the *vertical* height of a sheet made on the smallest press (evidently adapted to the standard "Halbrähmchen" or half-depth frame) is about 6$\frac{7}{10}$ inches, while the L. sheet is 7¾ inches, the sample inclosed ought to represent about the thickness Herr Rietsche would consider suitable to the L. sheet, *without wiring*. In this country, however, we had better assume that full sheets would be wired. If so, we may also assume that the thickness of 1.35 meters to the kilo would be about right for the *wired* L. sheet. If I figure rightly this is about 7¼ sheets to the pound. Let us call it 7, and assume further that we can do as well as a ten-year-old boy at the Reichenberg convention, who, seeing the exhibition of foundation-making, asked permission to try the machine himself. His first sheet was a success, and he kept on the whole afternoon, employing "scarcely a minute" for each sheet. Then 7 lbs. an hour are worked, or $1.12 an hour saved (if that weight of foundation, made on a mill, would cost 41 cents per lb. in quantity), or $8.96 a day at the least, with the probability of at least doubling it — for Herr Rietsche is too well known in Germany to make it at all likely that he would make a statement of the speed of his machine that no one but himself could possibly attain.

I think something must have been decidedly wrong, either with the machine you tried or the way it was worked; for in all my reading of foreign journals I have not come across a single hint that foundation could not be made as thin as desired on a Rietsche press. This much seems certain, that it will not do for us Americans to be satisfied with our present knowledge of the Rietsche press. We must find out more about it before we drop the idea. If I could save $1.12 to $2.24 an hour, I should be quite willing that the bases of the cells should be considerably thicker than those in bought foundation ; and, for that matter, is there any reason for supposing that they can not be made thin? Herr Alfonsus' statement, that foundation *can* be made as thin on the press as on the mill (on which I based my first assumptions) may be accurate when applied to the mill foundation that he has seen ; and whatever thinness that may have had, is likely to be thin enough for the *bases* of the cells of *brood* foundation ; while by altering the shape of the die surface (as was done in making rollers for the Given foundation), the amount of wax in the *walls* may give the required weight and strength to the foundation. However, this is all theory with me, and I ask, for information, what is the reason for assuming this can not be done in a molding-press? May not such an assumption be something like assuming that Given foundation could not be made on a roller mill?

Perhaps it is not altogether fanciful to suggest further that the introduction of an easy and cheap method of making one's own brood foundation would result in a far more general use of foundation, with the attendant benefits, than is indicated even by the amount of money saved. That would be in accordance with human nature, at any rate. To pay out cash is much less likely to happen than to utilize what one has.

It strikes me that that "mussing-up of things generally" on page 446 is about as strong an expression as could be found to describe the molding process. True, I can't speak of it at first hand; but reading ought to give one a faint inkling of how matters are; and my reading so far has failed to show how there is any more mussing-up than in the inevitable task of melting up the wax product of the apiary; in fact, I should have inferred from my reading that it was, rather, a clean operation.

I note that you do not say that the majority of bee-keepers who have roller machines have long since come to the conclusion that it does not pay to make *brood* foundation for their own use. Perhaps they can't make it pay to make their own *surplus* foundation—a different matter. And even if they did make the statement of brood foundation, I should take the liberty to disagree with their assumption that their own circumstances are a rule for others. A man who can afford to lay out $30 for a roller mill for his own use alone, with as little inducement as has hitherto been held out to do so, must for that very reason have some store of this world's goods. His interests are likely to be varied, and must be considerable; therefore his time must be worth, financially, a good deal more than mine. Most probably he *hires* help; and why should he not buy foundation? It amounts to the same thing as buying an expensive mill, and *hiring* a man to put his time in on the fuss and muss which it requires. But the poor man may have to lay out as much, or more, for foundation in any one year as a molding-press ought to cost him, while at the same time he gets no more for his time than a day laborer, counting the whole year. Why should he not get a cheap press, which, if we are to believe any thing at all that is said of it, requires very much less fussy and mussy work than the mill? It is fallacious to refer to the experience of the majority of bee-keepers in this matter, for they have had experience with the mill only. So far from being less able to compete with the roller machines with the factories, there are the best of reasons for thinking it is better able to compete. A table-knife successfully competes with a razor in a good many ways. Let us not imply that it is absolutely essential to impart a factory gloss to a home-made article for home consumption.

Dr. Miller doesn't want the bother and worry of making his own foundation. I shouldn't either, if I had as many irons in the fire as he has. It is a wonder he wants the bother and worry of doing any thing with wax, or of keeping bees at all. Mr. Editor, I respectfully request that you put out of the room all those bee-keepers who are presidents and secretaries and factotums of this, that, and the other organization, rose-fanciers, etc., and all those who have sixteen assistants to boss—unless they promise to be good, and imagine themselves in the place of the representative bee-keeper who depends on his own pair of hands alone to secure him a year's support for a year's work, and who fondly hopes that his rainy-day pile, repeatedly scattered and tramped on, may some day begin to grow again.

Montrose, Col.

[You admit you have never tried the Rietsche press; and that being the case you have to get your facts and figures second-hand. Granting, for instance, that we are prejudiced in favor of factory-made foundation, it is reasonable to assume that the inventor or manufacturer of the Rietsche press is equally prejudiced in favor of his machine; but, so far as possible, let us eliminate prejudice, if there be any, and let cold figures speak for themselves.

In the first place, your figures—at least some of them—are incorrectly drawn. You are assuming that the sample of foundation you sent to us runs about 7¼ sheets to the L. frame. I carefully weighed it on delicate scales, and found it ran about 6 L. sheets to the pound. To prove the result, I went down into our wax-working department and picked out 6 sheets of medium brood foundation which ought to weigh 6 L. sheets to the pound. These, when placed on the scales, responded to the proper notch. Out of one of these sheets, all run at the same time, probably within a minute of each other, I cut a square of foundation equal in size to the little sample you sent. I then took a pair of delicate watchmaker's balances, and, having found that they "balanced," I placed a piece of Rietsche foundation on one side and a piece of our medium brood on the other side, both of exactly the same size. They balanced exactly.

Again, I notice that you figure wax at 25 cts. a pound. This figure does not include the cost of refining and a slight loss from dirt. After being cleaned it is worth 5 cents more. This would make the wax run 30 cents a pound in place of 25; for the 25-cent article will be hardly fit—at least the average run of it—to make decent foundation.

Then you have made another error in putting the price of factory-made foundation at 41 when it should be 40. Assuming that your boy or man on the Rietsche press would make 50 pounds of foundation in a day (which I very much doubt), you ought to take the 50-pound rate for factory-made foundation. Now, then, let us start over again:

I noticed you have allowed the boy or man 49 sheets per hour on the Rietsche press, on the basis of 7 sheets to the L. frame; but if you figure that the Rietsche sheets are only 6 to the pound, as per sample, then we will give you credit for 8 lbs. per hour, which at 30 cents would make a total of $2.40. Suppose the poor man's time is worth 15 cts. an hour, this would make a total of $2.55, not allowing any thing for express charges on machine from Germany, cost of the machine itself, the mussing-up of pots, kettles, and pans, and the probable scorching and spoiling of some wax—a result that is quite liable to take place with the ordinary amateur. Medium brood factory-made foundation in lots of 50 pounds would cost $3.20, leaving a balance in your favor of 65 cents—that is, providing we do not figure in the cost of the Rietsche press, express on the same, mussing up, soiling of pots and kettles, and the possibility of ruining some wax.

If you have saved 65 cents, you have a proportionately inferior article of foundation. It is clumsy and brittle, as is all cast wax. Careful examination of the sample foundation you sent shows that there is a fearful waste of wax in the bases, and not enough side-wall to make the bees take it quickly. That being the case, it is very evident that light brood foundation, factory-made, would not only be just as good but just as cheap—yes, far cheaper—if we include the incidental items referred to. Forty-nine sheets of the latter will cost about $2.57, and the foundation that you made would cost $2.55.

I carefully tested, by heat, factory-made light brood and the Rietsche sample sent, and found that the former was not only tougher, but could resist heat fully as well.

To argue that a bee-keeper can afford to make his own foundation would be like trying to prove that a small flour-mill could compete with one of the great establishments of the country, or that the old-fashioned cobbler could make a pair of shoes as cheaply as the great shoe-factories. You may be able to so place the figures as to make a strong case; but you can not get around the fact that even the small manufacturers of foundation have generally given up the trade to the large manufacturers, for the reason that they can buy cheaper than they can make it. What is true of the small manufacturers would be more true of the consumer.

I am not trying to show that bee-keepers ought to buy Root's, Dadant's, or the foundation of anybody else, rather than to make it, for the sake of bolstering up the supply business; but I do think it would be about as foolish for one to make his own foundation as for him to try to make his own clothes. There has been a great deal of money wasted by a good many people trying to make their own things "to save manufacturers' profits," instead of sending to the factory and getting something much better, and usually for less money. Some bee-keepers even now are foolish enough to try to make their own hives and brood-frames. If they will be careful enough to figure, they would see that they are probably paying as much for their lumber to make a certain number of hives as they would have to pay for the same lumber at the hive-factory, all neatly and accurately cut up, and ready to nail together.

I wish I could say these things in some other journal than our own; for as it is, at least some will shake their heads and say, "He has got an ax to grind." Perhaps some of our readers will think I am taking a good deal of space for either side of this question; but GLEANINGS believes in free speech, and in letting both sides have a hearing up to a reasonable limit.

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MIGRATORY BEE-KEEPING IN CALIFORNIA.

Some of the Difficulties; Large and Small Wagons for the Purpose.

BY C. A. HATCH.

To one living in the East it seems marvelous and all sunshine and pleasantness when he reads of the great yields of honey in this country. But California bee-keeping has its drawbacks as well as any other country. The first thing noticeable to a new comer is the fact that scarcely any bee-keeper lives where he keeps his bees. This of itself makes the bee-man at least migratory, even if his bees are not. The reason for this is that few of the good honey-yielding plants grow on land suitable for farming, and usually of no great value except for stock-ranges; and, further, while California produces many honey-plants, there are but few locations where more than one are available; therefore the successful bee-man must be prepared to emigrate to pastures new when one place has been worked; and when a dry season comes he must be ready to take advantage of any chance honey-flow he may hear of.

My experience has been confined to the Santa Clara Valley. Here we find most of the bee-keepers live in the towns, and move from place to place, sometimes going as far as 100 miles from home. Many are single men with no families, and camp anywhere during the bee-season. Some go to the mountains during the sage-bloom, and then either move to the coast to the bean-fields, where lima beans are grown by the thousand acres, or go still further away from the coast to get California buckwheat or buckbush honey, which is a white fine honey, and nothing like our eastern buckwheat.

The kind of wagon usually used is a common farm wagon or a large freight-wagon needing four to six horses to draw it. M. H. Mendleson, who moves more than any other bee-man I know of, has built special racks for the purpose, suited to large wagons and large teams; but either small wagons or large ones are open to objections. It takes too long to move with two-horse teams, and the large wagons are too unwieldy with their long string of horses to go every place that it may be required to go to. Most of the apiaries are in the parts of the country where roads are not of the best, and there are always many risks by rocks, floods, quicksands, etc.

The bees are prepared for moving, first, by extracting all from the supers if run for extracting; or, if for comb, all supers are removed, and each hive must have not less than four empty frames in the brood-nest, and, if moved at the close of sage-bloom, an empty extracting-super having alternate empty combs and empty frames is put on. Second, the entrance is closed with a screen, and a frame covering the whole top of the hive, covered with wire screen, is put on. This screen cover has the two end pieces made ½ inch wider, so that, when the hive-cover is nailed on, it leaves ½ inch space between the screen and hive-cover, so in case one hive is set on top of another, ventilation will not be cut off.

The hives are usually loaded at night, and the teams lie up during the day if the journey is to be too long for one night.

This is M. H. Mendleson's plan, and I think he has made the subject a study, and has the best moving-appliances I have seen, and makes a success of it where the distance is not too great for one night's journey. But I am inclined to think that, where the trip is too far for that, the present arrangements are inadequate. Too many colonies crowd the entrance full of bees, and thus cut off upward draft, which smothers too many bees — not that Mr. M.'s loss of colonies has been great (only about 10 out of 400 moved), but the weakening of colonies has been too great to leave them strong enough for good work until more bees are hatched, and then it is too late for the honey-flow. There seems to be greater loss than would appear by simply looking at the dead bees at the entrance, so I came to the conclusion that many that apparently came through all right were so weakened by worry that they soon succumbed when put to work.

There seems to be another difficulty in the way of migratory bee-keeping being a brilliant success; and that is the fact that colonies at the close of a long and abundant honey-flow are not as strong in numbers as at the beginning. Of course, this can in a measure be overcome by giving particular attention to breeding bees during the honey-flow. Good ventilation and a circulation through the hive are essentials. In two instances have I known of disaster for lack of these two essentials. One man lost a third, and the other much more. This was loss outright, to say nothing of injury to others.

I rented bees this season, first, because I was a "tenderfoot," and did not know how much my Wisconsin bee-keeping would avail me here; and, second, because I wanted to be free to go when the honey season was done. I ran one apiary for Mr. Mendleson, consisting of 233, spring count, and 275 at the close of the season. From these we extracted 48,500 lbs., and then removed to the bean-fields, where the prospect is fair for getting 4000 lbs. more.

Bean honey is fine-flavored and white, but inclined to candy quickly.

Montalvo, Cal., Aug. 10.

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AMONG THE BEE-KEEPERS OF MICHIGAN.

The Advantage in the Use of Bottom-starters; Developing the Home Market; Hives for Migratory Bee-keeping.

BY A. L. BOYDEN.

Reaching my old home at Saline for a few days' vacation I found that the season there (Southern Michigan) had been better than for a number of years past. White clover, which had almost disappeared, has returned, and a fair crop of honey had been secured. Looking over the cases of comb honey I had to compliment my brother on the appearance of it, as the combs were built down so well, and so securely fastened to the bottom. He had used bottom starters, and declared himself very much in favor of them. I believe that much of the breakage in shipping might be avoided if combs were well built to the bottom of the section; and perhaps the best if not the only way to secure this is by using bottom starters.

A day or two later we had a very pleasant call from Mr. W. D. Simonds, of Whittaker, Mich. Mr. Simonds formerly used chaff hives, I believe; but, being annoyed with foul brood, and for other reasons, he has given up their use, and now uses a house-apiary. He is very enthusiastic over it, believing that, for ease in handling, freedom from robbers, and safety in wintering, it is all that can be desired. I believe he mentioned only one difficulty; viz., an occasional loss of queens in mating.

Saturday, Aug. 7, found me at the home and apiary of a Lenawee County bee-keeper, Mr. A. Middlebrook. He reports a fair season, showing me a nice lot of choice extracted and comb honey. I asked him where he sold his honey, and he replied, "In the home market." I then asked him what price his extracted netted him. He said, "About ten cents per pound." It seems to me that bee-keepers make a great mistake in not doing more to work up their home markets. Mr. Middlebrook has used frames about 10 x 14; but having tried the self-spacing Hoffman, he proposes to adopt this style in regular L. size.

IN THE WILLOW-HERB DISTRICT.

Leaving Washtenaw Co. for a few days' visit to Central Michigan I stopped first at Mount Pleasant. This is a pleasant little town in fact as well as in name. I had heard that the willow-herb never fails to yield honey, so I expected to find the bee-keepers of that section in the midst of the flow. Very unexpectedly, however, and almost unaccountably, it is yielding but little this year, and in some cases the bees were robbing. I called to see Mr. T. J. Fordyce, a supply-dealer who has quite a large apiary within the limits of Mount Pleasant. He was away from home, so I chatted with Mrs. Fordyce for an hour or more, learning much of interest to me about the willow-herb country. A puncture in my bicycle-tire delayed my departure for the out-of-town apiaries, so I passed the time very pleasantly with Mr. Wm. Bamber, proprietor of a planing-mill. He also keeps a few bees, and is making some supplies. Evidently the Dovetailed hive is as popular there as elsewhere, as I noticed with interest a machine he had made for dovetailing them.

After dinner I started on my wheel for the apiaries of H. S. Wheeler, Walter Wing, and H. S. Morrison, which are located down the Chippewa River in the tracts burned over by forest-fires three years ago. I found neither Mr. Wheeler nor Mr. Wing at home, so I pushed on over sandy roads to Mr. Morrison's yard. I might mention that none of these apiaries are located at the owners' homes. Mr. Morrison has about 200 colonies, and he uses largely the Simplicity hive. I spent the night with him, and very much enjoyed hearing him relate some of the incidents connected with his work in the willow-herb section. I had always supposed that, in moving an apiary to catch a honey-flow, a good deal of time would be lost by the bees, even after reaching the new field; but when Mr. Morrison told me he found bees coming back loaded with honey in *seventeen minutes* after the entrance was opened on the new field, I thought very differently. Indeed, I believe now more than ever that it will pay bee-keepers to use such hives as can be readily moved from one place to another without loss of time, and with no annoyance to the bees or apiarist.

[Mr. Boyden, the writer of the foregoing, is Mr. Calvert's right-hand man and stenographer. It was Mr. Boyden who, during Mr. Calvert's absence for nearly a month, assumed much of the work that devolves on my brother (-in-law) John. Before coming here he was engaged in the supply business in Michigan, and had quite an extended experience as a bee-keeper. He is now one of the old standbys of the office. In our next issue Mr. Boyden will relate something further in regard to his trip.—Ed.]

NOTES BY THE WAY.

BY J. T. CALVERT.

After leaving Reno we ascended the Sierras to the summit, 7017 feet above the sea, and above the snow-line, even in July. The descent into the beautiful State of California was a panorama of ever-increasing beauty. At Auburn we were greeted by the Christian Endeavorers, and treated to a bouquet of flowers for every one. Fruit was abundant and luscious, and cheap. When passing through Clipper Gap I learned that S. F. Woodworth, who has been making bee-supplies and fruit-boxes at that place, had recently been burned out—a total loss and no insurance. If your property is not insured, see that you have it done before you are a day older.

The C. E. convention was one of unusual interest and power. It has received such full notice throughout the religious and secular press that I will not attempt a report here. I set out to make notes of special interest to bee-keepers, and hope I may not entirely fail to do so.

I called on W. A. Pryal, of Oakland, who is still interested in bees. He had had the pleasure, a few weeks previously, of showing about the city Mr. Thos. Wm. Cowan, editor of the *British Bee Journal*. Mr. Cowan has a son in California, with whom he and Mrs. Cowan have been spending the past winter. They are so well pleased with California that they expect to remain another year and enjoy its delightful climate and beautiful scenery and abundant natural resources.

The great wheat-harvesters of California were a sight worth mentioning. These machines, drawn by 24 to 30 horses or mules, and cutting a swath 18 to 24 feet wide, cut the grain off just low enough to secure all the heads. The grain is thrashed, and put into sacks. The chaff and straw are either dropped in a swath, or, if it is desired to stack and use it, it is collected and dropped off in bundles, forming a winrow ready to be gathered and stacked. The grain, cleaned ready for market, is dumped off two or three sacks at a time, gathered up on wagons, and corded up in the fields. There are no barns or granaries, every thing being left in the open air. As no rain falls except during a few winter months, there is no need of the protection required in other sections of the country. Single fields cover hundreds and sometimes thousands of acres. I was told that they usually get two crops of wheat each year. The second crop is self-seeded from the first, and is usually much lighter. As I passed down the San Joaquin Valley much of the crop was already harvested. The immense wheat-storehouses at the stations along the way were nearly full. Thousands of sacks were corded up in the fields. Other fields were not yet harvested, and, as far as the eye could see on either side the track, there was little to be seen but wheat-fields. As I looked on this immense stock of golden grain, and noted that the market price was advancing, I concluded that here were gold-fields of more value than those of Alaska, and that they would feed more people, and bring more blessing to mankind.

I stopped a few hours with M. R. Madary, of Fresno, who handles most of the bee-supply trade of the San Joaquin valley. He reported that, up to about the 10th of July, the bees had barely made a living, and bee-keepers had begun to feel rather blue. But at the time I was there, July 14, they were rolling in the honey at a very lively rate, and prospects were favorable for a fairly good crop. The main dependence here is alfalfa, and a very good quality of honey is produced. A cool backward season seemed to be the cause of a lack of honey earlier.

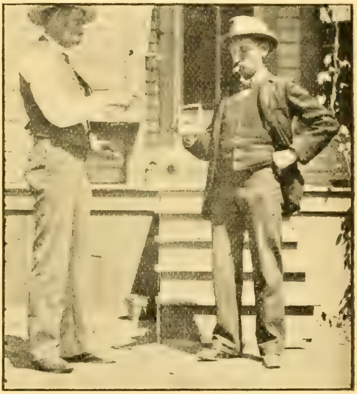
My next stop was at Los Angeles, where I spent several days. On the way there, near Acton and Newhall we passed apiaries near the railroad. From the looks of the mountains and country generally, at this season, as we passed along down the canyon, we wondered where the bees got so much beautiful honey as has been gathered in this section this year. The latter rains did not come, hence the honey-harvest was cut off earlier than it is when they have an ideal season. The sage-brush and other shrubs that produce honey were pretty well dried up at this time of year.

I found John H. Martin (the Rambler) at the office of the California Bee-keepers' Exchange, 330 South Broadway. He had had previous notice of my coming, and had notified a few of the bee-keepers near the city. In a little while Mr. Bennett, of the *Pacific Bee Journal*, dropped in; also Geo. W. Brodbeck. Soon half a dozen of us were together having a little bee convention all to ourselves. The bee-keepers of Southern California were feeling quite comfortable from the fact that they had secured what they considered about half a crop. This half-crop was estimated to be from 250 to 300 carloads (12 tons to a car). Some commission men had reported to me that the crop would be 500 carloads; but Mr. Martin, who is secretary of the Bee-keepers' Exchange, and in a position to know, said that half that amount would be a fair estimate. San Diego Co. alone produced about 60 carloads, or one-fifth to one-fourth of the whole. Quite a number of cars of honey had already been sent east, and some to Europe, by the commission men. The Bee-keepers' Exchange had employed the Cutting Fruit Co. as their selling agents, and also fixed upon the minimum price for the different grades; and up to the time I was there (July 20) had made almost no sales. They had already warehoused quite a little, advancing to the bee-keepers about half its value until it should be sold. Some bee-keepers, who were anxious to get their money, were selling outright to dealers and commission men at lower prices than those fixed by the Exchange. It will take some time to clean up such lots of honey, when the Exchange may hope to realize on their honey. It will take patience and perseverance on the part of the members of the Exchange till they become established. Some changes in methods of management may be found necessary; but there is no qnestion that they are on the right track, and that, if California bee-keepers generally stand by the Exchange, they will be benefited in no small degree. Exchange honey is sold under a trade-mark seal, and guaranteed.

Perhaps nine-tenths of the honey produced in Southern California is extracted. The proportion of comb honey, however, is increasing, and it would be hard to surpass anywhere some of the comb honey I saw.

One of the leading bee-keepers is M. H. Mendleson, of Piru City. He has 900 colonies of bees, and up to the middle of July had taken over fifty tons. He had just moved his bees to the bean-fields, where he hoped to secure 12 to 15 tons more. If it were not for the faithlessness of a tramp bee-keeper whom he had engaged for the season he would have had at least ten tons more. This man, a Mr. Frank Curl, has lots of ability and a great deal of experience, and can make himself very useful. He has wandered about so much, having been in almost every State in the Union, and to Cuba twice, that he can not control his wandering mania. He has been here in Medina three times in the last twelve years. He engaged to Mr. Mendleson for the season, and left him just when the honey was coming in fastest and he could least afford to spare him. He even offered him double the wages he had agreed to work for; but nothing would induce him to stay. I mention this here that others may be warned.

Mr. Mendleson put into use this season 30 of the Danzenbaker hives complete, and 500 of the Danz. supers, which he used over the regular 10-frame L. hive. He had 30,000 of the Danz. sections filled, and most likely would have had forty to fifty thousand had not Mr. Curl failed him at the critical time. While he does not like the brood-chamber of the Danz. hive, he is much pleased with the super, and expects to get as many more for next season. The honey he produced in the Danz. sections, put up in our basswood cases, nicely labeled, was handsome indeed. He was getting 11½c per pound from the fancy grocery trade, while large lots in the regular 4¼ sections and pine cases made on the coast were bringing 8 to 9 cents.



RAMBLER AND MENDLESON DISCUSSING THE DANZENBAKER SECTION.

While in Los Angeles I enjoyed the hospitality of Rambler's "bachelor hall," and partook of the pancakes for which he is deservedly famous. We had Mr. Mendleson with us a part of the time, and I am pleased to be able to give you a view of "the other two," with a rear view of the "hall" in the background.

Some C. E. ladies from the East called on Mr. Martin after I left, and he writes me that he could not prevail on one of them to remain in Southern California.

Although I visited the State at the worst time to see it at its best, I was delighted with it, and hope to go again before many years roll by, and stay longer.

THE editor of the *Review*, in speaking of the passage at arms between Mr. Newman on the one side, and Messrs. Mason, York, *et al.*, on the other, says he can not close without "expressing regret at the spirit exhibited by Mr. Newman toward some of his old friends who have thought his course open to criticism." That is the way a great many more of Mr. Newman's old friends feel about it. Not one has had a desire to accuse him of being "dishonest," neither have they felt "malignant" or "spiteful" toward him.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE. BORODINO. N.Y.

LONG HIVES VS. TIERING UP.

Question.—Why do not those working for extracted honey use a long hive, holding the same number of frames that they wish to use in one story, instead of tiering up several hives, one on top of the other, as is advised in our bee-papers, and quite generally practiced? I am of the opinion that a long hive would be more convenient, and that less time would be consumed in the manipulation of it.

Answer.—The above brings to my mind what happened years ago; and as it will serve to answer the correspondent's question I will speak of it here.

Some twenty or twenty-five years ago Mr. D. L. Adair, of Kentucky, was quite a prominent bee-keeper and writer for our bee-papers. He used and advocated a long hive, to be used on the principle of spreading frames out horizontally, instead of tiering one hive above the other, claiming that, thereby, a colony of bees could be kept in a normal condition, and while in said condition no swarming would be the result. This he termed the "Long-idea" hive. Being always ready to test all "new ideas," I made two hives, each four feet long, during the next winter. One of these I worked for extracted, and the other for comb honey, on the Adair plan. The one worked for comb honey swarmed, either because the "idea" was faulty, or because I did not know how to fully manage such a hive, or both; so after repeated trials to keep them at work in the four-foot hive I let them have their own way, when they had swarmed after being returned the fourth time.

The one worked for extracted honey did splendidly; but another, worked on the tiering-up plan, did nearly or quite as well; and by practical knowledge I learned that I could work a two or three story hive much more easily than I could this long one. To take the frames out, the person's back must be bent just enough to make it the hardest kind of work; and the bees which were shaken off the combs would crawl all over the sides and top of the hive in such numbers as to make it almost impossible to close it again without taking much valuable time. With the two-story hive the bees could be shaken on top of the frames in the lower hive, with but very few taking wing, when they would crawl below till the hive was closed; and the operator could stand erect, or nearly so, while doing the work.

But the worst thing about it was that I lost both colonies during the next winter, and during every succeeding winter that I tried to winter bees in them. So far as I could see they were prepared for winter as well as any of the other hives which came through the winter in good condition. I tried these hives for honey several years, putting colonies from other hives in them in the spring, as often as those in them died, but with no better success than at first; and finally, becoming disgusted with them, I tore them to pieces and made the lumber into other hives. For extracted honey, I know of nothing better than using any of the ordinary hives two and three stories high, according to the populousness of the colony being worked.

ITALIAN BEES NOT WORKING IN SECTIONS.

Question.—I have had Italian bees for the past two seasons, and they have made no surplus honey, while from my blacks I have had fair returns in section honey. What do you suppose is the cause of this? and what course shall I pursue to remedy the matter?

Answer.—As the writer does not give information as to the number of colonies he keeps, it is hardly possible to tell just what course should be pursued in the matter. If he has ten or more colonies that persist in not entering the sections, it is something I never knew of happening before; but if there is only one or two colonies which act that way it would not be very strange. One important point in the construction of a hive for comb honey where Italian bees are used should not be overlooked; and that is, the brood-chamber should not be too large. If the questioner has a brood-chamber of from 2500 to 3000 cubic inches, I should not wonder at the actions of the Italian bees; for Italians are more prone to store honey in the brood-chamber than the blacks. Especially do they show a preference toward storing in the brood-combs over the sections if the queen does not have the combs occupied with brood when the honey season commences; and if they have room to store from 30 to 40 pounds of honey in the combs below they will very likely not go into the sections at all. If bees refuse to work in sections, there are various methods of coaxing them to go to work. I will give two or three which are usually successful.

If a section, or several of them, are taken from a hive where the bees are at work nicely in them, and placed on the hive where the bees are loath to enter the sections, carrying the bees that adhere to the sections with them, it will usually incite the non-working colony to go to work in the sections also. If this does not work, fit a piece of drone comb, containing small larvæ, into one or two sections, when the bees will at once commence to work in the surrounding sections. Or you can drum or shake from the frames the larger part of the bees and the queen from such colony as will not work in sections, and put them into an empty box or hive; and when they get to building comb nicely, put them back where they came from. Where this plan has been used I never knew them to fail to work, going right to the sections, and building comb in short order. In drumming out the bees, do not drive too close, as bees enough must be left to fully protect the brood. The nice white comb that the drummed colony build while in the box should be placed in the sections for "baits," for there is no greater incentive to commence work than new white comb containing a little new honey. Of course, all of this is given on the supposition that our questioner's bees were strong enough as to numbers to work in sections, and still refused to do so, when the honey harvest was on. Where any hive is not filled with bees it is useless to attempt to make them work in sections. Many are deceived in this way, and I mistrust that this has something to do with our friend's bees not working. Italian bees do not breed quite as rapidly early in the season as do black bees; but if attended to as they should be they will have more brood in just the right time to give us laborers in our field just when we wish them than will the others. That Italian bees are inferior to black bees for comb honey, if properly managed, I never could see, even in a good season; which fact is now generally conceded by nearly all of our best bee-keepers; while in a poor season they certainly show great superiority over the latter to the amount of quite a surplus, while the black bees scarcely make a living.

Heads of Grain from Different Fields

HILTON IN FAVOR OF THE SQUARE BOTTOM-BARS.

I have just read O. O. Poppleton's article on page 517, and it has given me courage to say I was much pleased with the ⅜ bottom-bars and *so sorry* when you stopped making them; and many of my customers have asked for those "square bottom-bars." I have been tempted several times to ask you if you could not make mine that way, but would think I ought to conform to the will of the majority. But I feel with you that the majority does not know what is wanted. I never had so many frames fastened to the bottom-bars as while using the ⅜ bottom-bar. I hope you will make more of them, and always send me that kind. GEO. E. HILTON.

Fremont, Mich., July 19.

[I have noticed that all the square bars in our apiary have the combs built clear down to them, and most of them are solid slabs without a place for the queen to hide. The only objection to them is that the bees will not only build down to them, but sometimes clear past them, on to the next set of frames below. This was urged at the time we made the change, and was considered so serious that the substitution for a wider bar seemed almost imperative.—ED.]

ANOTHER WAY TO KEEP GRASS DOWN IN THE APIARY.

After reading what you had to say in the last number of GLEANINGS about sheep keeping down the grass in the apiary, I thought perhaps my way of doing it would be interesting to you and your readers. I keep my bees in my chicken-yard, under a large apple-tree which furnishes shade for both chickens and bees all day except in the early part of the morning. The yard is 30 by 40 feet, inclosed with wire netting 7 feet high, in which I keep eight Black Minorca hens. These keep the grass and weeds down so that you could hardly find a blade of grass in the whole yard. The chickens and bees run a separate business, and never interfere with each other except when I shave off the heads of drones, and the bees carry them out. Then the chickens will clean them up.

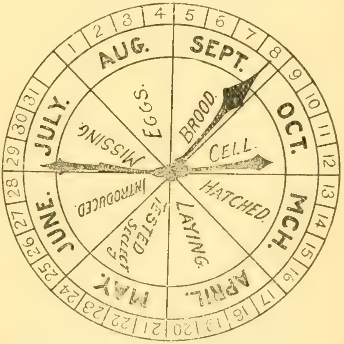
I had ten stands of bees; increased to 21, and got nearly 900 lbs. of comb honey, which I think is pretty good, considering I live in a city, and do not follow it for a business. One advantage, I think, in having a high fence around your apiary is that it compels the bees to fly high enough to get over, and keeps them out of the way of any one who may be in another part of the yard. L. I. SHRADER.

New Albany, Ind., Aug. 5.

A QUEEN-REGISTER DESIGN.

Inclosed find a queen-register card that I use for keeping record of hives, in which I am raising queens. I have 30 hives of blacks in my apiary, and wanted to raise Italians for each hive. I tack this card to a 4x4x¼ piece of pine, then drive one tack through the hands or registers. I then drive in four tacks with the heads ¼ inch out; then I turn the board card down. All I have to do to know the condition of a hive is to turn over and look. This was my first attempt at queen-rearing, and I must say I enjoy it. I am trying to follow instructions as given in the A B C of Bee Culture. R. S. WILSON.

The Gums, Miss.



HONEY-FLOW PHENOMENAL.

The honey-flow is over in this locality, and all I can say is it was phenomenal. I have never seen the clover bloom as early and last as long as it did this year. We had a fair fruit-bloom, a very light locust, and a very light basswood, as a great many of the few trees of that variety we have in this section failed to bloom. I had only 9 hives, spring count; now I have 32; have taken off 300 lbs., and have 700 or 800 more to take off. I have sold 250 lbs. at 20 cts. per lb. The clover honey is as fine as silk and as white as foam. The fruit-bloom is rather dark, but of extra flavor.

J. L. Bell.

West Middletown, Pa., July 27.

MARKETS SMASHED; TOO MUCH HONEY; FOUL BROOD AND POOR SEASONS BLESSINGS IN DISGUISE.

Our white-honey harvest is not over; bees are working hard on both white and sweet clover. I never saw in Wisconsin such solid fields of white clover as we have had, and it keeps renewing right along. Weather is now splendid for secretion.

Our local market is smashed. I sold a few crates to merchants in Monroe at 12½; then in came the farmers and filled them up at 10 cts. Now the farmers are going to everybody and selling at 10 cts. Merchants expect to buy at 8 cts. (fancy comb honey). I have sent some trial shipments to Chicago and Milwaukee, but have not received returns yet. N. E. France writes me that those markets are already filled up with California honey, both comb and extracted. It looks to me as though the business has fallen by its own weight, and foul brood and bad seasons have been friends instead of enemies. I had expected to go more largely into honey production, and am running now about 160 colonies; but your kind advice (which I was wise enough to heed), not to give up railroad work, was the best thing for me that you could have advised. I have had three months' leave of absence this summer, and have worked hard in the apiaries here and at Monroe, and had a good man helping me. The Monroe field is a splendid one, and a nice place to live. Browntown promises to give a heavy crop from the large branching sunflower again this year.

Harry Lathrop.

Browntown, Wis., July 29.

BEGINNERS
QUESTION
BY E.R.
ROOT.

R. H. L., O.—Sometimes a swarm will come out and enter into another hive, the result being a battle between two lots of bees. Instead of allowing them to fight, however, you should have smoked them both thoroughly.

I. M., Mich.—I feel quite certain that the bees in question have been visiting milkweed, for I notice the milkweed-pollen appendages to their legs. I think you will find the milkweed is in bloom in your vicinity, and that the bees are working on it. The reason why you think they are robbers is because, when they go into the hive, the other bees attempt to claw off the appendages, and they are apparently attacking them as if they were robbers. For fuller particulars we would refer you to "Milkweed," in the A B C of Bee Culture.

R. C., Neb.—There must be some mistake about the rumor that you heard regarding a bee-keeper in Illinois feeding his bees glucose by simply knocking in the head of the barrel containing the stuff, and letting the bees help themselves. Bees will not touch clear glucose unless it is diluted; and even then they will not touch the stuff that is ordinarily used for adulterating. It is too vile, and has too small an amount of sweet to attract their attention. It is possible, however, that the party you refer to buys grape sugar, often called glucose. This is not a bad sweet. Years ago, when sugar was much higher than now, we used to feed our bees this kind of sugar to stimulate brood-rearing. It is such a mild sweet that the bees would never rob. It does not pay to use it now.

J. H. McC., Ark.—We can not explain why your bees should swarm more this year than usual, unless it is because the honey-flow has been unprecedentedly heavy. It does not do to return a swarm back to the hive from which it came, without changing its internal condition. They will sulk, hang out, loaf, and finally swarm again; in fact, they will swarm as often as you hive them, and as long as the honey season continues. The best way is to hive them on the *old stand* on starters or frames of foundation in another hive. The old parent colony, while the swarm is in the air, should be removed to another location. If there was already a super on the parent colony, it should be put on the new hive now on the old stand. For particulars, see page 32 of our catalog; also our A B C of Bee Culture.

W. W. P., Ill.—It is not difficult to understand why you lost your queen. You probably failed to note carefully the first three sentences of the directions for introducing. We have sent you another set of directions, and now call your attention to the fact that a colony that has been queenless from 12 to 15 days is not likely to accept a queen; for in that time they are pretty sure to have a substitute of their own, in which case it would be simply impossible to introduce a queen. We never think of trying to introduce where we find a number of queen-cells. You may be sure you have destroyed them all; but even if you do succeed, the bees somehow have the *impression* that they have cells, and that, consequently, they are going to have young queens, and they do not want an introduced mother. You will note that the directions state that colonies should not be queenless over five days, and two days are usually better. The reason for this is that in this short length of time the bees have not had time enough to rear cells, or, at least, sufficiently far along to "bank" on future prospects. The directions that we have prepared for introducing queens have been adopted by all queen-breeders; and from this it is reasonably certain that the statements contained there are very nearly correct.

Editorial

MR. HUTCHINSON says, "Starting a journal simply to enable one to berate some one, is too much like biting off one's nose to spite his face." Just so. The experiment has been tried two or three times, and the result has been just as Mr. H. says.

PROPOLIS is now getting to be a little stiff and hard, and it is sometimes a difficult matter to separate the super from the hive-body. Nothing is better for this purpose than a large screwdriver. Better yet, don't leave supers on too long unless you are after an extra quality of well-ripened honey.

DID you ever notice that the strong, smarty flavors of some honeys are rendered much more mild if eaten with bread and butter? After all, almost any honey tastes better when taken in connection with the staff of life. I remember that once the judges of a honey exhibit at the Ohio State Fair insisted on having bread and butter to test the honey by.

MR. HUTCHINSON, in commenting on the fact that Mr. Vernon Burt keeps grass down in his apiary by letting sheep run among the hives, says the only objection he can see to it is that the "ground might not be so tidy as we should like it;" and while he admits that it is considerable work to keep grass down with a lawn-mower, he is of the opinion that the accompanying advantages arising from the use of the mower are worth all they cost. I can readily see how Mr. Hutchinson would think the ground might be untidy in places where sheep were kept; but if he could see Mr. Burt's apiary I think he would conclude with me that the ground about the hives is as neat and clean as a mower could make it.

AT our house we like well-ripened honey—honey that has been on the hive for some two months after it has been stored and sealed. We have some supers at our out-yard, containing sections of sealed honey that had been on the hive for some six weeks after being capped over. The cappings are badly travel-stained, and sections pretty well smeared with propolis; but the eating of the honey is where the best part comes in. Such travel-stained sections would not sell; but for my own use I prefer them every time. I do not know that I have any particular liking for propolis and travel-stain, but I do like honey that has been ripened by the bees.

A SUBSCRIBER sends us a section honey-box which he says is over thirty years old. It is exactly 4¼ inches square, and the thickness of the stuff itself is ⅜. Our subscriber does not give his name, but says, "Contrast this with the Root sections of to-day." The remarkable thing is that it should be 4¼ square, exactly the size of the standard section of to-day. It was A. I. Root, I believe, who fixed the standard size of the sectional honey-box, and that was away back in 1872, I think. That would be only 25 years ago. A. I. R. adopted the 4¼ size because 8 of them would just go inside of an L. frame. It is possible that the user or maker of this section adopted the same dimensions for the same reason.

IN a recent editorial, in speaking of the fact of our now using new type and a new press to get out this journal, I wound up by saying that, while we did not claim to have the best bee-journal, we did think we were "keeping up with the procession." To this claim the editors of both the *American Bee Journal* and the *Bee-keepers' Review* have kindly given their cordial assent. The fact is, I could not honestly say more, knowing the general excellence of our two rival cotemporaries.

By the way, how much better it is to be modest and moderate in statement regarding one's own wares, one's own journal, or one's own baby, if you please! Often we see the advertisement of a country grocer who says, "We pay the highest price for butter and eggs, and sell groceries the cheapest;" or, "We make the best goods;" or, "We lead the procession." I do not know but we shall have to confess that we have been just a *little* guilty of what I am now condemning. If the Lord will forgive us we will never do so again.

Suppose, for instance, I had said, "GLEANINGS is the best bee-journal, and always leads in the procession." Could Bros. Hutchinson and York have indorsed that without making a wry face? Well, I think not, very much. They might have made the corners of my mouth drop down a notch or two.

I suppose it is not stretching the truth very much to state that each bee-journal has a field of its own — a mission of its own — and each excels in its own particular line.

THE LANGSTROTH-MONUMENT FUND.

SUBSCRIPTIONS for the Langstroth monument are coming in very slowly indeed, and in amounts very small. An eminent bee-keeper from a foreign land, who had already sent us a generous contribution, and who now sends $10 in addition, says: "I think it a blot on bee-keepers, not coming forward more liberally. . . . Are the bee-keepers of America really so poor that they are not able to raise a monument to Langstroth?" I do not believe it is because they are poor so much as it is because they are careless — that is, they *intend* to do something, but put it off till some other time, and that "some other time" never comes. If the *American Bee Journal*, the *Review*, and GLEANINGS keep on hammering, we may in time be able to raise funds to put up a suitable monument. If hammering will bring the money, GLEANINGS will keep on pounding, but for goodness' sake, let us not be a reproach to bee-men across the water. In the mean time, do not put it off, but send in the nickels, the dimes the quarters, and the dollars. Langstroth was a real benefactor. He is not only revered by the bee-keepers of the United States, but by all Europe as well. Let us pay him this our last tribute. If the money comes in, and a suitable monument is erected, we will show a half-tone picture of it.

MY TRIP EASTWARD.

As our readers are aware, I have been planning a tour among the bee-keepers of the East this summer. I leave here for the Buffalo convention, and will go on from that point, after the convention, to Syracuse, where is located one of our branch offices. I shall make a circle among the bee-keepers of that vicinity, taking in Doolittle, Salisbury, and others; then on through Herkimer, Otsego, and Tompkins Counties; thence on to Providence, R. I., where I am to act as judge of the honey exhibit at the State Fair, which lasts from the 6th to the 10th of September. But I shall be at the exhibit, probably, only the 7th. I shall make a flying trip, going by rail for long distances, to save time, and using my bicycle to strike intermediate points and places not directly on the line of the railroad. But I am afraid I shall have to skip by a good many of our good friends, as my time and strength will be limited.

COMMISSION SWINDLERS.

On page 500 of this journal for last year we published the name of Martin Brockman, a commission man in Cincinnati, who had obtained from Mr. Byron Walker some $70 worth of honey, and who either would not or could not make any returns. At all events Mr. Walker was satisfied that Mr. Brockman tried to swindle him. He now sends me information, coming from the Postoffice Department, to the effect that this same Brockman, together with George R. Dixon, A. Hess, and Chas. Cook, made up a gang whose headquarters were in Cincinnati, and who had been conducting a fraudulent business through the medium of the United States mails. Report goes on to show that they were convicted in the United States Court, sentenced, and are now serving time as follows: Brockman and Dixon, four years each, and Hess five years and four months, in the Ohio penitentiary; Cook gets thirteen months in the Cincinnati workhouse. Such news is refreshing. It is a pity that Uncle Sam could not get after the glucose-mixers in the same way. If he could, I imagine that the business of the $12,000,000 glucose trust, recently formed, would languish for want of respectable patronage.

THE NEW TARIFF RATES, AND THEIR RELATION TO APICULTURE.

Elsewhere I have referred to the tariff on glucose. In looking over a copy of the Dingley tariff bill, recently enacted, I find that the tariff on honey is 20 cents a gallon, and beeswax goes free as before. White-pine lumber, of which hives are made, is subject to a duty of $2.00 per 1000; basswood, $1.00. The tariff on honey is, I think, unchanged. Its effect has been, I believe, to keep out of our markets cheap honey from Cuba and Mexico. At first sight it might appear that the tariff on lumber would have a tendency to raise the price of hives; but, fortunately, there is a very large lot of lumber of good grade on the market, suitable for making hives, and this lumber is begging for a customer. It is what is usually denominated "shorts" — that is, it is lumber that is otherwise suitable for purposes of building, but too short to work to advantage on a house or barn. The very fact that the lumber-dealers are competing with each other to get rid of these "shorts" will prevent the tariff or any thing else from raising or lowering the price of hive lumber just at present.

Now, I hope that what I have said on the subject of the tariff will not be construed as having a partisan flavor. We have no room for any discussion of the tariff or free trade in our columns; and any article of that nature sent in for publication will be returned by the first mail. What is said above is neither for nor against the tariff — or, at least, it is not so intended.

DRONE-TRAPS VS. CLIPPING QUEENS' WINGS TO CONTROL SWARMING.

The editor of the *Review*, in referring to what I said about chasing after swarms with unclipped queens, and that it was my determination hereafter to have all queens' wings clipped, whether our customers liked it or not, suggests that queen-traps will enable one to control a swarm without clipping. That is true. At our out-yard we used traps on all colonies having unclipped queens. But the perforated zinc somehow seemed to disconcert the workers, and then toward evening the bees of such colonies showed a tendency to cluster out more than on those hives having colonies of equal strength where the entrances were left unobstructed. But queen-traps are handy, "allee samee." There were two colonies at the out-yard that were so very populous, and being a little on the hybrid order, it was not practicable to take time to hunt their queens, so I just clapped on entrance-guards and let them go.

It should be said, however, in connection with the entrance-guards, that they will prevent virgins as well as laying queens from going off with the swarms. It sometimes happens, unbeknown to the apiarist, that the laying queen is superseded, and a virgin or young laying queen takes her place. In such a case, if the old queen were clipped the bees could swarm and "light out" for parts unknown; but perforated zinc would hold them — or at least there would be very few virgin queens that would get through it, and in general practice there are none at all.

R. B. LEAHY'S VISIT TO MEDINA.

R. B. Leahy, the supply-man of Higginsville, Mo., and editor of the *Progressive Bee-keeper*, on his tour among the manufacturers and bee-keepers made us a brief call here at Medina.

The Leahy Manufacturing Co., like every other manufacturer of bee-keepers' supplies, has had this year a heavy run of business; and Mr. Leahy himself, having worked many a night up to 12 o'clock, to keep up with his correspondence, found himself needing rest and a change. He accordingly sought the scenes of his old home by the seaside. After a good rest he started on his way westward, visiting Doolittle, the W. T. Falconer Mfg. Co., and finally stopping off at the Home of the Honey-bees. From here he expected to go to Mr. Hutchinson's; from there on to Chicago to call on Mr. York, and thence run on to the G. B. Lewis Co., the Page & Lyon Mfg. Co., and other supply-dealers. Mr. Leahy will, after his whirl over the country, get a pretty good idea of the bee-supply business.

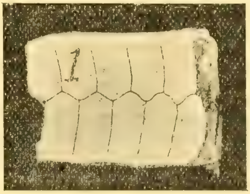
He started, not many years ago, with hardly 25 cents to his name, and is now treasurer and general manager of the Leahy Mfg. Co., capitalized at $24,000. When Mr. Leahy started in, there were scores of other small manufacturers, nearly all of whom have since given up the business. By energy and perseverance he has more than held his own, and has built up a business of no small proportions.

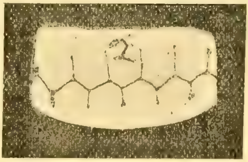
HOW BEES BUILD COMB, AGAIN; CONDITIONS UNDER WHICH THEY WILL MAKE MORE MIDRIB IN COMB HONEY THAN OTHERS.

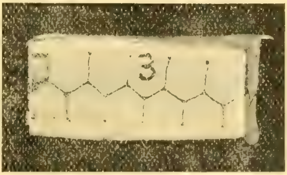
SINCE our last issue, but before it reached Mr. Doolittle, we have received a letter from our Borodino correspondent, sending in his report of the new drawn foundation. He finds it no more quickly accepted by the bees than foundation, nor finished any sooner, and that, after being completed, it has a "resistance in cutting far greater than that built on common foundation." He winds up, "I had hoped it would be a boon to bee-keepers." It will be remembered that Mr. Doolittle was very favorably disposed toward the new article when it was first introduced; and, so far from believing it would work disaster to the industry, he expressed himself as believing it would be a great stride forward.

As the results secured by Mr. Doolittle were so different from those obtained by us, Dr. Mason, Burt, Iper, and others,* we began a careful and more thorough investigation. Mr. Weed and I overhauled our sections containing comb honey that the bees had made off from the new foundation; for it will be remembered that, in our eating-tests on the two different lots (see page 529), no one of our Medina folks could tell the difference between combs of honey built from drawn foundation and that from the ordinary product. We knew Mr. Doolittle to be a very careful and conscientious observer, and set about to discover *why* he should have such a different result. The drawn foundation we sent to him arrived near the close of his season; or, at least, Mr. Salisbury, living within thirty miles of him, and to whom we sent a similar lot on the same day, reported that the season was fast waning.

Well, in going over our sections of comb honey from drawn foundation we finally found some specimens that had heavier bases or midribs than some other lots that we had been testing, and which seemed to be all right. In order to get a better cross-sectional view of them they were placed in plaster casts, as were also pieces of worker comb built wholly by the bees, natural-built drone comb, drawn foundation *before* it had been in the hive, and another specimen after the bees had worked it out. Cross-sections were taken of each, and the results reproduced in half-tone. No. 1 shows natural worker comb without foundation of any sort; but it was when the honey-flow was good. No. 2 is also a sample of worker comb built wholly by the bees. But you will observe that its walls, and especially its bases, are very much heavier than those of No. 1. But No. 2 was built *after* the honey-flow, and at a time when the bees had plenty of leisure to put in a surplus of wax. No. 3 is an ordinary specimen of drone comb built during the flow of honey, and, as we have before shown, the base and walls are considerably heavier than in the case of No. 1. No. 4 is a sample of deep-cell (or drawn) foundation from the latest dies, before the bees had done any work on it. No. 5 is the same foundation drawn out during the honey-flow. But







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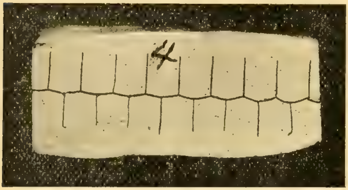
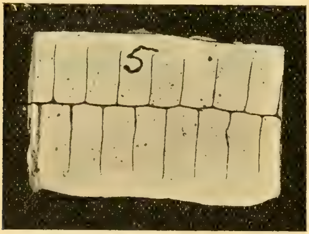
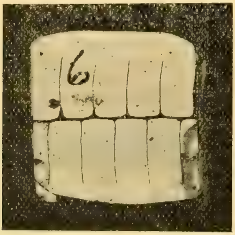
* Since writing this we have heard from B. F. Onderdonk, Mountain View, N. J., who says: "Have tried a section of the ¼-inch drawn foundation, and find it perfection to the palate, and *no* gob."

you will notice, somewhat at variance to our experience previously reported, the bees thickened the bases a trifle, and also thinned the walls near the top edges. No. 6 is comb built from drawn foundation, as shown at 4, but it was drawn out when the honey-flow was waning, and the bees had more time to chink in a surplus of wax, just as they do in case of their own natural product, as shown in No. 2.





It will be noticed in this connection that there are times when bees make much heavier walls and bases in their comb-building than at others, and that those times vary according to the strength of the honey-flow; whether it is on in full blast, is waning, or has stopped altogether. Bearing in mind these facts, it is easy to reconcile why Mr. Doolittle should have secured different results from those obtained by us. When we placed our deep-cell foundation on the hive, it was during a time when honey was coming in well; and it would seem, therefore, the bees used, with slight modification, any thing and every thing that had cells into which they could pile their honey, as they had not time to draw out the ordinary foundation. In the case of Mr. Doolittle, the honey-flow was waning, and, as drawn foundation has flat bases, the bees were probably halting between two opinions—on the one side, whether they should utilize cells already drawn out, but which had *flat* bases that they didn't like, or should stop to draw out the foundation that had natural bases. As they were not able to give them an hexagonal form they did the next best thing, and filled up the corners with wax, as will be seen at 6, and to a less extent in 5.



The result of all of this goes to show that we were honest in reporting what we saw, and Mr. Doolittle was equally honest in reporting exactly what he observed. It is evident, then, that, even in deep-cell (or drawn) foundation, flat bases do not always suit the bees, and that there are times when they will try to remodel those bases by sticking in more wax, and thus making a more perceptible midrib.

Mr. Weed, who has made all of these plaster casts, and has given me all of my pointers, assures us that he can make drawn (or deep-cell) foundation, if you please, with *natural* bases. His first idea was, in fact, to make such bases; but his experiments last summer led him to believe that flat bases, when deep walls were used, were just as good as natural. But Mr. Doolittle's letter caused us to stop and scratch our heads, and go all over our experiments again more carefully; and the result is that Mr. Weed has about come to the conclusion that natural bases are better, even in the case of deep-cell foundation, and he now proposes to remodel his bases; and this, I have no doubt, he will do successfully.

I am willing to acknowledge that, in one respect at least, drawn foundation is not what we at first hoped it would be, but in only one respect, and this in relation to the matter of the bases; but if that is the only trouble we can easily remedy it.

But there is one thing we can not do, and that is to prevent the bees from building their all-worker combs heavier at some seasons of the year than at others. A few weeks from now we hope to show you samples of drawn foundation having natural bases instead of flat, said bases being just as thin as the bees make them. Probably the walls will be a little thicker near the bottom of the cells than at the top. But that makes no difference, because the bees like the job, seemingly, of thinning down the walls, for we know they almost invariably do so.

THE CONVENTION AT BUFFALO.

By using my wheel I have managed to get home just before the last form goes to press, and find I have but little space left to tell a long story. I can only say here that this session has been, if not *the* best, one of the best ever held by American bee-keepers. How could it have been otherwise? We had all the great lights, besides some who have never been with us before, or not for many years. J. F. McIntyre came all the way from California, as did Mr. B. S. K. Bennett, editor of the *Pacific Bee-keeper*. Capt. Hetherington was present with two of his brothers. Poppleton, of Florida, was on hand, and others.—A. I. R.

NOTES OF TRAVEL
BY A. I. ROOT.

THE GREAT SEEDSMEN OF PHILADELPHIA AND VICINITY.

I was greatly pleased to discover the pleasant relations that exist between all of the Philadelphia seedsmen. Burpee, Landreth, Johnson & Stokes, Maule, and Dreer were all visited; and instead of clashing or conflicting, each seems to occupy more or less a field all his own. For instance, Landreth *grows* seeds on his great farm, perhaps more than any other institution of the kind in the world. Greer has the most extensive and up-to-date *greenhouses*, filled with tropical plants. Burpee is the great originator or introducer of new and improved vegetables, although all of them grow more or less in this line of work, and so on through the list.

My first visit was at Burpee's. Their large building with its many offices was, as a natural consequence, quiet and still for the most part, at this season of the year; but I could not help admiring their arrangements and appointments for doing a large business with speed and dispatch. Mr. Burpee himself was absent in Europe at the time of my visit; but I was very kindly given most complete directions for reaching Fordhook; and while I was waiting for a train at that beautiful depot, Spring Garden, I greatly enjoyed looking about me. This depot is on an elevated platform above the streets. In fact, it is almost an elevated community; and trains are coming in and going out so constantly that one wonders what it can all be for. The appointments and arrangements to prevent mistakes and accidents are most wonderful. While I was viewing these things a fine-looking young man came up, evidently in some haste, and, touching his hat, said:

"Is it my pleasure to be addressing Mr. A. I. Root?"

I smiled while I assented, and then asked him what he knew of A. I. Root, anyhow, for I considered myself an entire stranger in a strange land. He said he had just learned that I was in the city, and that I had started out to Fordhook Farm; and although he had just come from there he said it would afford him great pleasure to go right back and show me around. I remonstrated a little about making so much trouble; but he would have his own way.

All along our route I was again impressed with the beautiful surroundings in the way of homes and homelike decorations. At Landsdale, where we changed cars, on a little bit of green lawn belonging to the depot building I saw the finest piece of bedding, with ornamental foliage-plants, that it has ever been my fortune to find anywhere. It was morning, and the dew was not yet off the plants; and when my eye caught it I made a start of surprise. The center-piece was a round bed perhaps ten feet across; then radiating from this center were ten oblong beds about the shape of a cucumber seed. They radiated from the center-piece like the petals of a flower. These beds were, may be, twenty or twenty-five feet long. The outside, next the grass, was, if I remember, a line of what I should call "dusty miller." Then came another line of dark-purple colei, and inside of this was a center of golden bedder; and the golden hue was so bright and vivid that it almost made one think of a flame of fire or a most brilliant patch of sunlight. Now, this alone would have been to me fascinating; but, sprinkled all along the dividing lines between the golden and purple colei, were geraniums, in two colors, in bloom, the deep dark red contrasting strongly with the lighter pink. The whole thing burst upon me exactly like strains of music. Why, I do not think it is too extravagant to say that, for the time being, I was almost entranced.

I wonder if there are other people like myself. I have attended great concerts, and listened to classical music from some of the great scholars, without feeling very enthusiastic; but when I was in Atlantic City waiting for dinner, after my bath in the salt water, I was startled by strains of music of wonderful pathos. I discovered that it came from a little Italian girl who was playing on some sort of accordion. She was grotesquely dressed with a quaint sort of cap or covering for her head. This covering was made of different-colored soft fabrics; and the head-dress, with the dark complexion and eyes underneath, gave me a thrill. Why, it seemed as if I never listened to strains of music more beautiful. Then when a childish voice broke in a little later, I stood drinking in the great flood of joy that filled my soul, wondering how it came that God saw fit to send these thrills to me so unexpectedly. Well, it was just the same way with that beautiful bed of bright colors, with its vivid entrancing background of green. I purposely turned away several times to see if, when I looked back again on the beautiful scene, it would give me such a thrill.

In talking with Mr. Dreer afterward about his great greenhouses he said he thought the railroad companies were doing a grand thing in the way of educating the world in general, by these beautiful "object-lessons." He said many a farmer, while traveling, had, to his knowledge, made resolves that he too, when he got home, would have a little bit of lawn and some of those handsome plants.

Now, before I take you to Fordhook Farm let me remind you that we are indebted to W. Atlee Burpee for some of the most popular and valuable vegetables now known to the world. First, and perhaps best, Burpee's bush lima bean. Why, we hardly sell pole limas now at all since this has become to be well known. Burpee's Sure-head cabbage has become a household name, almost; and the self-blanching celery, introduced in 1884 — why, what would the world do without it at the present time? We might say almost the same thing of the Emerald Gem melon. The white Victoria onion has been one of our favorites for bunching, for many years. Burpee's Extra-early potato is almost a standard in many localities; and the Matchless and Fordhook Early tomato and Breadstone turnip are things that seem to have come to *stay*.

On the way to the farm I told Mr. Earl, my companion, how long I could stay in Philadelphia, and the places I wanted to visit. He said, as did friend Selser, that my stay was altogether too short; but that, if I insisted on carrying out my program, I had better leave my wheel at the station, and he would get a rig and give me at least a glimpse of what they had to show, in the shortest time possible. I do not know but I did express my surprise that Mr. Burpee should leave his entire plant in charge of a man so young as my companion —a boy, almost. In fact, he told me he was only 27 years old. I soon concluded, however, that Burpee's head was level in selecting a general manager. By the way, in our own work at home, a great many times old and trusty men have felt deeply grieved because some younger one was promoted and put over them. Dear friends, we who manage business often think of this. But God has seen fit to give some people special talents; and, even though it hurts to bow our head in submission, it is the right and proper thing to do.

I was first taken into the office and shown the books of record. Those who have undertaken to test and compare new fruits and vegetables know something of what a task it is. Different foremen on Burpee's farm make it their business to plant the seeds, watch and care for the plant, study its habits and peculiarities, and note it down in an appropriate book. This is not done for only one season but a series of seasons. Nothing is put into the catalog until it has stood the test, and found to be beyond question superior to the old sorts. You may inquire why it is that we have fifty or sixty varieties of peas, and other things accordingly. Well, it is a hard thing to drop an old variety. In cutting down our catalog I have several times decided to drop such and such things; but I have learned that there is sure to come a wave of disapproval when I decide to rule out almost any thing that has been previously cataloged. If it is not somebody in Florida who has found that very thing just suited to his locality, it is somebody out west or down east or up north.

Of course, the flower business, which is the great specialty at Fordhook Farm, was rather out of my line, although I did greatly enjoy looking at the beds of the new Sunset large-leaved coleus. At Fordhook Farm, things are arranged mostly for testing varieties or for growing seed; therefore I did not find much that stirred me as did that ornamental bed by the railway station. A field of mixed verbenas, just in full bloom, was a most pleasing sight. Just imagine a buckwheat-field, one of the whitest you ever saw, with the flowers of all colors of the rainbow, and you would get the effect. Of course, sweet peas were a grand sight, for Mr. Burpee is one of the greatest, if not at the head of the sweet-pea growers of the world. I greatly enjoyed looking over a field of tomatoes grown expressly for seed and nothing else. Some of them were just beginning to color at the time of my visit. I saw a spring, or little run, where they wash the seeds from the pulp, in getting the seed ready for market; and I smiled as I asked my friend if that was where the ducks formed habits of intemperance.

"Yes, Mr. Root, that is where the ducks got drunk; and we were sorely puzzled for a good while to know what ailed them, and what made them die, until somebody suggested that the pulp the ducks were feeding on had fermented until it was intoxicating."

Yes, it was indeed true. The ducks not only learned to get drunk, but, instead of profiting by experience, as soon as they recovered enough to get back to the stuff that was killing them they got drunk again and again until they actually died. Finally their owner was absolutely obliged to fence them off and permit them to have access only to the fresh tomatoes from which the seed had just been taken. We may pardon the ducks, because they are only dumb brutes anyway; but what shall we say of human beings, made in God's own image, who follow their example? Burpee keeps abreast of the times by offering for sale every thing worthy of being cataloged, and I believe he sometimes offers for sale some things that are not worthy of being cataloged, were it not that they have already been widely boomed. For instance, in his catalog for 1897 he says of sacaline, "It is comparatively worthless as a forage-plant in America." However, he offers it to any who want it, for 10 cts. a package. After describing *Lathyrus sylvestris*, or flat pea, he says: "As a forage crop it can not compare with Indian corn, cow peas, etc."

I was much pleased with another notice, to the effect that visitors were always welcome on any day *except Sunday*.

Burpee not only grows flowers, but he is an enthusiast on fine poultry; and his poultry-houses and yards are the most perfect in the way of cleanliness of any thing I have ever found. Why, you could sit down and read a book right where the fowls roost, and not notice any unpleasant smell. I presume this is managed by cleaning the houses every day, and by the proper use of dry dust as a deodorizer. His kennels for collie dogs are also models of cleanliness and good taste. It seemed really too bad, however, to keep the intelligent little fellows shut up when they begged so piteously to get out. When I asked the price of some of the good-looking little puppies they said they were already sold at something like ten or twelve dollars apiece, and some of them are sold before they are born.

Although I did not have the pleasure of meeting Mr. Burpee himself, I was very agreeably entertained by Mr. B.'s bright and intelligent sister, the manager's wife, Mrs. Earl, and the little ones of their pretty home. And, by the way, right by this home, and, in fact, with its branches spreading clear away up above and over the roof, is one of the largest basswood-trees I ever saw in my life; but, strange to tell, they have never noticed any honey-bees around it when it has been in full bloom. I wonder if there are no bee-keepers around Fordhook Farm.

OUR NEIGHBORS.

And as ye would that men should do to you, do ye also to them likewise.—LUKE 6:31.

I told you of the many attractions constantly exhibited at that great bathing-place, Atlantic City. Prominent among them was the comparatively new vitascope, a most wonderful invention in optics. It really amounts to a photograph of living *moving* figures. Here were perhaps a dozen or more of these instruments, each one having different subjects. Friend Selser and I looked at a few of them; but several of the subjects that I knew by reputation, and some I had seen in different cities, I told him were, in my opinion, unfit for any one to look at. It gave me pain to notice these were the very ones most patronized. While we were standing near one of the places of exhibition, friend Selser met an acquaintance; and while they were talking I looked about me, and especially studied with deep attention the great throng of humanity then on every side, for it was toward the middle of the day. Right near me was one of the vitascopes, labeled "Working the Typewriter," or something similar. I had avoided it before, for I knew something of what it was; but this one, judging from its shopworn look, had been handled most of all; and while I was waiting I thought that perhaps it would be a good plan for me to investigate and see just *why* this one attracted more attention than the others. I dropped my nickel into the slot, and commenced to turn the crank slowly, according to directions. The scene was a business office — clerks hurrying here and there, typewriters flying rapidly, boss giving orders, etc. In the foreground was a very pretty girl hard at work with a typewriter. A good-looking man with gray hairs and gray whiskers sat near reading a letter. In the opening scene there were quite a number of clerks in the office, as I have told you; but one by one they seemed to take their departure. Perhaps it was toward the closing hours of business. Finally the pretty girl and the boss were alone. He hitched his chair a little nearer to his clerk. Pretty soon, looking about, evidently to see that the room was empty, he patted her on the cheek; and it was not long after that before they were exchanging kisses. At length she stopped her work and put her arms around his neck, he likewise clasping her as if he might have been her father, and she a girl of ten or twelve. Her looks, however, indicated her to be twice that age. Just about this crisis a middle-aged fine-looking woman was seen cautiously coming into the room with noiseless steps. She came unperceived until she stood over the guilty couple. The girl, in her fright, jumped up and retreated, while our friend with the gray hairs went down on his knees before his indignant wife, and in a most humiliating way begged to be forgiven, no doubt promising that such a thing should "never happen again."

I presume some time and money were spent in getting up this little tableau or theatrical, or whatever you may want to call it. The look of righteous indignation which shone from the fine-looking woman's face seemed as if it could hardly have been put on. Then the shamefaced, cringing manner of the gray-haired sinner, and his more youthful companion, the typewriter girl, was *more* than reality. The woman listened to her husband's apologies and promises with some softening in her countenance, but she turned about and glared at the typewriter girl, shaking her fist at her meanwhile, and saying by her looks, plainer than any words could say it, "As for *you*, you good-for-nothing hussy, see that you never darken the doors of this office again;" and that was the finale. If you were to turn the crank any further you would commence over again with the office full of clerks, and every thing in proper decorum.

Now, you may wonder why I go over this. Perhaps almost everybody has seen it. They pay their nickels and have a big laugh, and tell their friends about it, and it is (or doubtless was) the funny thing of the season. Let me digress a little.

To fill out my program of visiting a number of seedsmen and their grounds at Philadelphia, friend Selser said we should have to do quite a little traveling. When we got on to the trolley-cars, to make any thing of a trip he got permission to put me in front beside the driver, and it was a rare treat indeed. I not only saw the wonderful sights of the great city as friend Selser pointed them out, but I received a great deal of information in regard to the rules and regulations for running electric cars. Almost constantly, especially during the busy part of the day, on Market and Chestnut Streets, the crowd would be so great that it seemed as if somebody would certainly be hurt; but I did not see an accident. At the crossing of the car-tracks the cars follow each other so closely that a novice like myself would think there *must be* a collision. At one time our car was going down quite an incline. At the bottom of this incline another car-line crossed ours at right angles, but there was scarcely any slacking up in order to pass. Our car went down the hill like a shot; and when within a very few feet of a car loaded with human beings it would slack up just enough to let said car whizz by. Sometimes it seemed a question as to which driver had the right of way; but I was told there were rules governing this thing, and that the drivers rarely or never made a mistake. Two cars would approach each other as if they were going to collide, with terrible consequences; but one would always slacken up just enough (and no more) to let the other glide out of the way.

Now, if you please, let us suppose that one of the drivers — the one going down hill, for instance — were a vicious man. Suppose he should run into a carload of passengers—possibly a family of little children. Suppose he were to smash the car into splinters, and throw the maimed and dying to the right and left, crippled for life, and perhaps crippled and maimed himself. Now, suppose this man should say he did it for *fun*—for a joke—what would be thought of him? Why, I am afraid they would lynch him as they have been doing lately, in terribly extreme cases. If he were to try to get out by saying he had suddenly become crazy, I do not know but community would think *such* a crazy man should be put where such a craze would never get hold of him again. If anybody should laugh at the occurrence, pretending he thought it was *funny*, this fellow would be in danger also. If our laws are not always thoroughly enforced, the one who undertakes to trifle with human life in the way I have described will pretty soon find there are officers, and public opinion back of them. Let us now go back to that little scene, the vitascope.

This gray-haired man, a gentleman and a scholar, possibly the proprietor of the establishment, deliberately plans something *worse* than the crazy motorman of my imagination. He wrecks a home—yes, oftentimes makes a worse wreck than will result from broken limbs and mangled bodies. This good-looking young woman, so skillful with her typewriter, deliberately consents to be a party in making this wreck and ruin. I do not put so much blame on her, because I think the man (or the person who is *supposed* to be a man) is as a rule by far the guiltier one of the two. He coolly and deliberately breaks his marriage-vow. He knows the consequences; and, in fact, if any one should presume to trifle with his wife or daughter in the way he is doing, he would very likely consider himself excusable for taking the law into his own hands. If he used a revolver, our courts would almost call him excusable. Oh what inconsistency! what a terrible thing is sin or Satan when it or he enters the human heart! Do you say that I am moralizing on a play in a vitascope, and that no such thing ever happened? Dear me! just take up one of our dailies and read a single issue. Men, and women too, and men who are *not* crazy, deliberately crash into and break up a family, estrange husband and wife, send the children out homeless and friendless, to care for themselves as best they can, or let the poor mother drag along and support them alone. If we were not as a people losing proper respect and reverence for the sacred institution of marriage, divorces would not be coming as thick and fast as they are nowadays.

Let us now go back to the bathing-ground, with its hundreds and thousands in their costume that has been so much condemned. It may be a dangerous place for both sexes; but, in my humble opinion, it is not a tenth part as dangerous or as bad as a business office where a man (no matter what he professes) spends many hours alone with no companion but a pretty young woman to manipulate his typewriter. I believe that men and women should work together, but not two solitary persons of opposite sex and not related. I do not believe very much in private offices. Let your business affairs and all your communication with your fellow-men be of such a character that you have nothing to conceal from the eye of God or from the eye of man. The bathing-resorts are comparatively safe—at least what I have seen of them, because there are such crowds all around us. I accidentally found out that policemen are stationed at every hand; and any indecorum, even if it be accidental, is promptly looked after, and the offender taught a lesson. I have often thought of paraphrasing this beautiful golden rule that I have chosen as my text. In fact, some of the experiences I have passed through in this life that God has graciously seen fit to give me to live have made me meditate often on this paraphrase, and I think I will put it something like this: As ye would that men should deport themselves toward your daughter, sister, or wife, both in act, word, and in thought, do ye also likewise to every other man's daughter, sister, or wife, in act, word, and thought.

The great wide world seems to think that lapses from virtue in the direction I have indicated are only a thing to laugh at; but, may God be praised, of recent date once in a while things of this kind are beginning to be recognized in their true light. Parnell, with all his scholarly attainments, wealth, and position, did not succeed in getting mankind (and especially *womankind*) to look at his sin and crime as a joke; and I for one protest against the custom of laughing and making merry over things of this kind, or in passing them off as a joke, or even as a funny thing in any sense of the word. It makes me sad to think so many people will look at this particular vitascope picture, and advise others to look at it and laugh. Let us remember the old-time fable of the boys pelting the frogs—"It may be fun for you, but it is death for us."

HIGH PRESSURE GARDENING

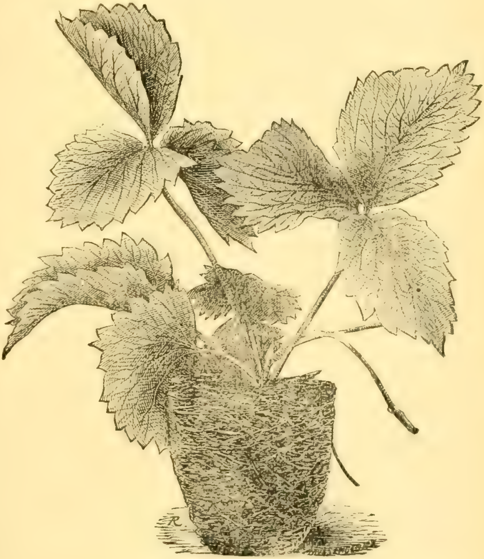
HIGH-PRESSURE STRAWBERRY-GROWING AND SUB-IRRIGATION.

Under this head I expect to tell how everybody can raise strawberries. If you live on a farm, of course you have ample facilities for growing them by the acre. But an acre is almost too great an area to be employed in *high-pressure* strawberry culture, unless, indeed, you expect to hire help. What I have in mind more particularly just now is for people who have just a garden — say a small garden. But if you haven't ground enough for a garden, and have only a few rods where you can get sunshine, you can grow wonderful strawberries even there; and if there be such who read GLEANINGS, who have not even a few rods, if they have even a few *yards* of ground where the sun may shine a part of the day, and where the plants may get the benefit of the summer showers, they may have much enjoyment and much delicious fruit, even with a few yards. Almost the only condition is plenty of daylight. During mid-summer, very fine strawberries may be grown entirely in the shade; but during the rest of the year it is much better to have the sunlight.

Few people are aware of what wonderful things can be done with strawberries where they are provided unstintedly with water and plenty of fertility. You need not urge that it will not pay; for if you get interested in the matter, I think the *enjoyment* will almost pay you, to say nothing of the luscious fruit; and then the pleasure of being able to astonish your friends by showing them strawberries as large as small-sized hen's-eggs, and almost as perfect in shape, which you may do with some of our finest new varieties!

To commence with, we must have sub-irrigation; and when you succeed in managing sub-irrigation for strawberry-plants you have the matter fully in hand so you are ready to apply it to almost any other crop. You may commence on a very small scale at first — in fact, I rather prefer you should do so. When you make a success of this small scale you can easily enlarge it as much as you choose. Perhaps the present month of September is as good a time to start as any, for we can now lay the foundation for great bushy plants to furnish us quantities of immense berries next spring. For sub-irrigation you must have some sort of bed or box that will hold water; and you can start the business very well with a large-sized common wash-tub, if you do not like to go to the expense of making a water-tight box. A tub would be rather deeper than is necessary, but it will illustrate the plan. Provide some good finely sifted garden soil — enough to fill the tub a third full. Then get some old well-rotted manure, old enough so you can work it through a coarse sieve. Such a one as is used for screening coal ashes will answer very well. Have equal parts of garden soil and sifted manure. A little clean sand and some swamp muck will help make a nice compost if you have materials handy. Set a common drain-tile on end at one side of the tub, and fill in with the compost. Now you want a strawberry-plant. The plant should be a young one; but if you can not find a young one, almost any strawberry-plant will do. But *I* would start with a *potted plant* (see cut) of one of the very best of the new varieties, because it is just as easy to propagate high-priced plants as low-priced ones. Set the plant in the middle of the tub. Let your tub stand where it can get both rain and sun; but should there be a *very* heavy rain so as to endanger filling the tub with water so it rises above the soil, the tub must be covered — that is, when the soil is wet enough. If it does not rain, pour water into the tile until it rises and stands say two or three inches below the surface of the soil. This water underneath will always keep your soil damp enough. But do not water your bed *every* day. Air through the soil at intervals is as important as water at intervals.

If the weather should happen to be dry and warm, evaporation will take away the water until it sinks in the tile almost to the bottom of the tub. When it gets down say within an inch of the bottom, then fill it up to within an inch or two of the top; then let it gradually sink down again. If you have rain every two or three days you will not need to water your little bed at all. But keep watch of it, and do not let the plants get drowned by *too much* water, nor dried out by lack of water. When the plant gets to growing vigorously it will put out runners. Spread these out like the spokes of a wheel, and let them take root. But a better way is to plunge a little pot, say two inches in diameter, down to the surface of the soil, and make the plant take root in the center of the pot. This enables you to move your young plants without having them stop growing. Above is a cut of a potted plant when the roots have filled the pot so that it needs to be taken out and given more room.



A POTTED STRAWBERRY-PLANT JUST BEFORE IT BECOMES POT-BOUND.

What is meant by "pot-bound" is letting the plant remain until the roots have so filled the pot that they become cramped and stunted. If you start plants in pots you must be sure to take them out before they become pot-bound. The plant, with all the soil adhering to the roots, is easily removed from the pot by turning it over and striking the edge of the pot a smart blow on some solid body — the edge of the tub, for instance. When your plants are ready to come out they should be put out in a similar tub, and placed at least three or four inches apart. If you want them to bear fruit they should not stand nearer than six inches. If you are going to keep the runners cut off, and grow them in hills, they ought to be planted as much as two *feet* apart. The largest and finest berries are grown by the hills system. This has been fully described in our strawberry-book.

Now, in the above you have the whole thing in a nut-shell. Sub-irrigation is certainly the way to grow strawberries. The objection to it is the expense of having water-tight beds. You can probably make a wooden box much cheaper than a tub ; and if you are going to make a box it ought to be large enough to take for a cover a common-sized hot-bed sash, the regular run of these being 6 feet long by 3½ feet wide. This box can easily be made sufficiently water-tight of lumber well nailed together; but it is generally considered cheaper to take less pains with the lumber and the carpenter work, and make the joints tight with water-lime cement.

There are many opinions in regard to the depth of soil needed to grow plants ; but I believe four or five inches is deep enough. Perhaps you had better have six inches of soil and manure. With the glass sashes I have spoken of you can protect the plants from frost, and have strawberries one or two months earlier than you can get them in the open air. The sash can also be used to keep off surplus rain when observation shows you there is enough in the bed. For a bed 3 by 6 feet you will want at least *two* tiles—one in opposite corners; and if you expect to neglect your bed, and let it get full of water during some heavy rain, you will need a hole bored down close to the bottom, with a cork to stop it up. But I do not like this arrangement. Whenever you let water off because you have so much as to drown the plants, you are leaching away the fertility of your soil. That is the way we do in all outdoor farming and gardening, but it is a bad way nevertheless. A small quantity of manure will do a tremendous lot of fertilizing in growing plants if we never permit the fertility to be leached away and washed away by excessive rains.

Well, after you get your sub-irrigating strawberry-bed, 3 by 6 feet, to working nicely, you are ready to try a larger one. Your bed may be 6 by 6 feet, so as to take 2 sashes, or it may be 6 by 12 so as to take 4 sashes; or you may have it 6 by 50 feet so as to take 14 sashes. That is the size of bed we use in our high-pressure gardening. I would not have it more than 50 feet long, because you have to carry the sash so far when you pile them up at each end of the bed. You will find cuts of these beds in our tomato-book.

"But can we not," somebody is always inquiring, "practice sub-irrigation outdoors?" We can; but a heavy rain is sure to fill up our beds and necessitate drawing off the water. It works all right in a greenhouse where you have control of the water supply; but I do not know how sub-irrigation can be made a success in the open air unless you arrange valves to be opened to let the water off when there is too much of it; and the water that comes out of these valves will show by its color that it is carrying away the fertility of your manure. And is not this an objection to *all* kinds of underdraining? Yes, my friend, it *is* an objection; but it is much better than to have the plants drowned by a surplus of moisture. These water-tight beds are expensive, I know; but for high-pressure gardenwork they are almost a necessity. When you have them nicely arranged you can push strawberry-growing or any thing else right through the most severe drouth ; and with the sashes put over your plants, you have nothing to fear in the way of frosts. I suppose, however, such arrangements will be particularly used for supplying yourself with extra-strong vigorous plants to put in the field, say during August and September ; and if he tplants are of some new variety that commands a high price, you can push your propagation without regard to what the weather may be.

These plant-beds should stand exactly level. If they do not, the water you introduce through the tiles will settle to the lowest point, and you want it disseminated equally all through the bed. With beds say 50 feet long or less, two lines of tiles should run the whole length of the bed. These are laid in cement, and the joints closed half way up the diameter of the tile. With this arrangement the water may be introduced, say, at each end; and you will in time moisten the soil equally the whole length of the bed. Now, while the bottom of the bed is on a dead level to facilitate even watering, the sashes should have an incline when placed on top of the bed, so as to carry off the rain water; therefore the north side of the bed should be an inch or two higher than the south side.

OXYDONOR, ELECTROPOISE, AND OTHER LIKE HUMBUGS.

One of our readers asks us if the New York and London Electric Association, with its electro-magnetic hair-brush and comb, and other things, is after the same stripe as the Oxydonor. We sent for one of their circulars. Just half a dozen lines of their claims tell very plainly where they belong. And let me say in general, when you get hold of any circular containing such unmeaning harangues, set the party down at once as a fraud, without reading any further. One of their traps they claim will cure cold feet, and they start out with the following: "We will answer the question in simple language. In the first place, the human body is an electric battery, the upper half being positive and the lower limbs negative." Exceedingly "*simple*," is it not? Electricity is getting to be a matter of every-day fact to too great an extent for anybody of intelligence, or even good average sense, to be humbugged by such statements. In regard to their electric hair-brush, which cures "nervous or bilious headaches and neuralgia, prevents baldness, and falling-out of the hair, cures and prevents dandruff and all diseases of the scalp," they make the following statement: "The brush is permanently charged with electro-magnetism in manufacture." I do not exactly understand why these charlatans, the whole tribe of them, have the same lot of meaningless set phrases and absurd statements that they keep harping on over and over again.

SPECIAL NOTICES FROM BUSINESS MANAGER

LARGE ORDER FOR FOUNDATION-MILLS.

During the past month we received from Russia the largest order ever booked for comb-foundation machines. It calls for six 14-inch, twelve 12-inch, and twenty-four 10-inch mills, besides a lot of other goods.

TUPELO HONEY FROM FLORIDA.

We have about 1000 lbs. of very fine tupelo honey from Florida, in three barrels, which we offer at 6 cts. per lb. for the lot. We shall be pleased to mail a sample free to intending purchasers; to others for 5 cents.

The honey is light amber in color, and has the same peculiarity as California sage honey in that it remains liquid in cold weather. This makes it desirable to those who put up honey in glass to retail.

HONEY MARKET.

We are having a fair demand for honey, both comb and extracted. We hear frequently from bee-keepers who are developing their home market, and who have sold all their honey and need more. We are very glad to be of service as a medium of exchange between those who have a surplus and those who have not enough to supply their home demand. So far we have sold honey, especially comb, as fast as we have secured it. We have several places in view where we can use more to good advantage. If those not too far distant, having honey to sell, will write us, telling how many cases of each grade as graded on page 566 of current volume of GLEANINGS, the size of the cases, whether our make or no-drip, and the price at which you hold it, we may be able to help you dispose of it quickly to good advantage. In the case of extracted honey, send a sample bottle by mail, and tell what kind of package it is in, the number of packages, and the price you expect.

We offer water-white California honey, in 60-lb. cans, two in a case, at 6½ cts. per lb.; light amber at 6 cts. Large lots quoted on application. Samples free by mail to prospective customers. To those who would like to see a sample and compare it with their honey we will mail samples for 5 cts. each, the cost of the package.

Fancy comb honey, in 100-lb. lots and upward, 13 cts. per lb.; No. 1 at 12 cts.; less than 100 lbs., 1 ct. per lb. more. Large lots quoted on application. Correspondence solicited from those interested.

HONEY-LEAFLETS.

Perhaps no offer which we have made recently has been more popular than our offer to furnish honey-leaflets to our readers and customers up to 500 at simply the cost of mailing them. An edition of 25,000 was gone in five days; the next edition of 14,000 was hardly dry before it was all gone. The third lot, of 31,000, was used up in three or four days. By the time this issue is mailed we shall have sent out over 100,000 of these leaflets. We are glad of the privilege of contributing so much to bee-keepers to develop a larger use for honey. If all these leaflets are judiciously distributed it is impossible to estimate the amount of influence they will have in increasing the demand for honey. We are preparing the leaflet in a more convenient form. It will be a folder, the right size to slip into an envelope without folding. It will also be provided with space on the front and back pages for printing the address or advertising card of the one who distributes them. We have had a call for them in this way. We will book orders for this style of leaflet at $1.00 per 1000; 5000 for $4.00; 10,000, $7.50; $1.00 extra for your address and business card on one page; $2.00 extra for both first and last pages printed special. We shall not have these ready for two or three weeks; and if there are any recipes, tried and found good, which are not in the present leaflet, we should be pleased to have you send us such at once. Here is one which has been tried and found excellent:

HONEY-DROP CAKES.

1 cup honey; ½ cup sugar; ½ cup butter or lard; ½ cup sour milk; 1 egg; ½ teaspoonful soda; 4 cups sifted flour.

Our offer to give away leaflets was only for the month of August. We shall be pleased to sell them to those not already supplied, or who may need more, at the regular prices, which barely cover cost: 100, 20c; 250, 40c; 500, 75c, postpaid; 75c per 1000, sent at your expense with other goods.

GLEANINGS AT REDUCED RATES.

New subscribers sending us $1.00, or subscribers who have paid up all arrearages, and send us $1.00 before their subscription expires, will receive a copy of the A B C of Carp Culture, 70 pages, price 40 cts., postpaid, the pages the size of these; or we will send, in place of the carp-book, one copy of Winter Care of Horses and Cattle, by T. B. Terry, a book of the same size as the carp-book, 44 p.; price 40 cts. postpaid; or in place of either one of the two we will send Maple Sugar and the Sugar-bush, a book of the same size, costing also 40 cts. postpaid. Remember, in order to get one of these valuable books all you have to do is to send $1.00 for GLEANINGS, and 5 cts. postage, and we will give you one of them free. An old subscriber, to be entitled to this offer, must pay up all back subscription, if any, and send in $1.00 for a year in advance, with 5 cts. postage.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

GARDENING FOR SEPTEMBER.

Now is the time to put in American Pearl onion-sets. We have a nice stock; also Prizetaker sets and White Victoria. The two latter have succeeded nicely when put out at the same time as the American Pearl. The ordinary white and yellow sets, however, do not seem to stand the winter as well. Prices of any of the onion-sets mentioned above, quart, 20 cts.; peck, $1.00; bushel, $3.50. Larger sizes, such as are used for pickling-onions, half the above prices. These will also do for planting out in September, but they are more disposed to send up seed-stalks than the smaller ones. White Multiplier and Whittaker onions, large sizes, that will split up into small ones if planted now, quart, 10 cts.; peck, 75 cts.; bushel, $2.50. Small sizes, that will make large onions next year, quart, 20 cts.; peck, $1.00; bushel, $3.50.

At the present price of wheat, over $1.00 to-day, August 23, I do not know but we could almost afford to grow wheat on our vacant ground for high-pressure gardening. Nice potatoes are also still worth $1.00 a bushel; apples ditto. Don't let your ground be idle. Get in crimson clover, rye, wheat, onion-sets, or something else. It looks at present as if there were going to be a demand for almost every thing we raise, and at very good prices.

POTTED STRAWBERRY-PLANTS WITHOUT THE USE OF POTS.

In connection with this new material, jadoo fiber, we have made a discovery which is, I think, of considerable importance. With the fiber, as I have told you, the pots very soon become filled with roots; and if you are not on hand to slip the pot out, and let the roots expand off into the soil, your plant is injured by becoming pot-bound. Now, my discovery is this: Have a piece of iron turned up in a lathe, so one end is just the shape of the inside of a two-inch pot. Take this iron bar and strike it in the ground after you have pushed the strawberry-runner aside, and you will have a cavity in the soil just like that in a pot. Fill this cavity with moistened jadoo fiber. Push down the runner exactly as if it were in a pot, and then the plant will never become pot-bound, because the roots will push off into the soil as soon as they have gone all through the jadoo fiber. In a week or ten days, loosen the soil around your plant with a trowel, and then you can lift the plant right out, taking the jadoo fiber along with it. Send it off by mail or express, or plant in your own ground as you please. For use we mix the jadoo fiber in water until it is a sort of mush. You can ladle into the holes in the ground with a large-sized table-spoon. By this means you have no pots to bother with, and the plants are never pot-bound, and yet they have fertility enough attached to the roots to give them a nice start in "housekeeping," when they are put out in the field. Very likely some other material or compost might answer as well as the jadoo fiber, but we have never found it. If you want to see what jadoo looks like, just order one of our strawberry-plants by mail, or we can furnish the material at the following prices, which have been fixed by the manufacturers: 5 lbs., 30 cts.; 10 lbs., 50 cts.; 25-lb. box, $1.10; sack, 120 to 130 lbs., 3 cts. per lb. It may be shipped either from here or Philadelphia, Pa. The material is so light that a single pound goes a good way.

We are prepared to ship promptly by mail or express, charges prepaid, any of the plants mentioned on pages 573, '4, of our issue for August 1.

Below is one of the many reports from one who has tried some of our "new process" strawberry-plants which he received by mail:

> The plants arrived in excellent shape, and were set out the same evening. At this writing seven have runners, which I have potted; the other three plants, runners, are just visible. ALBERT M. COLE.
>
> Providence, R. I. Aug. 19.

THE IMPROVED AMERICAN COFFEE-BERRY.

In our price list I have told you that this is something quite different from the soja bean, which it very much resembles. The objection to the soja bean for coffee is that it has a disagreeable flavor of beans or peas. Well, the coffee-berry we had last year had something of this flavor still, which made it objectionable to many people. A short time ago, however, a sample was sent me of a smaller-sized coffee-berry, saying it was a variety that matured so quickly that three crops could be grown in one season in Missouri; and, furthermore, that I would find by test that it was harder to detect from the genuine than any thing heretofore offered. This I find true, and, in fact, I should pronounce it excellent coffee. I do not think I could tell one from the other—or, at least, the coffee-berry would be fully as pleasant and agreeable to me as the genuine coffee. I have obtained coffee berries from different seedsmen, and we are growing them in our test-grounds. There are at least half a dozen different kinds. I was, however, so well pleased with this latter small kind that matures so quickly I at once made a purchase of two bushels like the sample, and we shall offer only this for sale, throwing away the kind we sent out last season. I am sorry for this; but the new smaller seed is so great an improvement that it will pay us all to do this. As to whether it is equal to real coffee or not, I think you had better all decide the matter for yourselves, and you can easily do it with a five-cent package. The price of the improved quick-growing coffee-berry is 10 cts. per ½ pint; pint, 15 cts.; quart, 25 cts.; peck, $1.75. If wanted by mail, add 10 cts. per quart extra for packing and postage.

KIND WORDS FROM OUR CUSTOMERS.

Every time I order goods I am more and more pleased. Next year I intend to purchase more foundation, and use it entire in boxes, and also in some frames. XAVIER PICQUET.

Sainte Marie, Ills., July 27.

The foundation is wonderful, and it is hardly possible to believe it was made by machinery. I hope you will send me the strips soon. H. J. BROMWICH.

Angola, Erie Co., N. Y.

I had no income from my bees from 1893 until this year, and even now the drouth has ruined my berry crop. But the fact is, I can not afford to part company with a man who has such a real love for turnips.

Beloit, Wis., Aug. 4, 1897. P. E. MARSTON.

The samples of drawn comb are at hand. Thanks. I am much pleased with their appearance, and can see no reason why this article should not prove to be all you claim for it. B. WALKER.

Evart, Mich., July 31, 1897.

Your brood foundation and starters for sections, shipped June 2, are of excellent quality, and cut to good advantage. Goods received all right. Thanks to the A. I. Root Co. ALFRED JACKSON.

Jackson, Ohio, June 22.

Since I have been in the bee business I have bought over $100 worth of goods from you for myself and others, and I have always found your goods to be the best and cheapest in the long run. JOE C. MOORE.

Globe, N. C., June 14.

The queen came to me the 17th of May in good condition, and is a perfect beauty. She has to-day, June 26, the hive full of beautiful Italian bees, and I am well pleased. A. BARNEY.

Seattle, Wash., June 26.

The goods I ordered this spring came to hand in due time, and are very satisfactory. The extra-thin surplus foundation is very fine. The bees take to it promptly. The Corneil smoker is just *boss of the bees*. The cream sections are also very good. Please accept thanks. GREEN R. SHIRER.

Green, Iowa, June 26.

Mr. Root:—I wrote you, night before last, that I had received the strawberry-plants, and to-day I received a statement and ten cents in stamps. You certainly conduct your business honestly, and give every one his due. I did not expect you to take all that trouble to return that little, and, in fact, did not know that I had sent too much. The plants are growing right along; have never drooped, and two of them are putting out runners. JOE L. COOPER.

Nashville, Tenn., July 17.

I am a young bee-keeper, and am desirous of trying the new foundation, so I have ordered a small sample. My year's supplies, ordered from your branch office at Mechanic Falls, I think the best I have seen. The Weed foundation is perfection. I wish I could afford to use full sheets on every frame in my new hives.

I must say a good word for GLEANINGS. I read every word in it, and wish there were more. In practical hints it has been worth more than $5 since I began to read it. EMERY D. BICKMORE.

Stockton Spring, Me., June 7.

25 Cts. PER YEAR!
for the best agricultural and
stock-breeders' paper published,
Stuart's Agriculturist.
Agents wanted! Bicycles, etc., free. Address
WHITWORTH BROS.,
Printers & Pub'rs, 60 High St., Cleveland, O.
Please mention this paper.

WANTED.—To sell 100 colonies of bees; ten-frame simplicity hives, mostly wired frames, combs all built on foundation, equipped for comb and extracted honey, every thing fixed for migratory work, can load 30 hives on rack and go any time, every thing on the most modern improved A. I. Root plan, well put up and painted. Bees scarce around here. White clover enough for 5000 colonies. Best of range for out-apiary. I have got to sell on account of climate.
E. Sandford & Son, Nokomis, Ill.

Queens, Untested queens, 50c each; tested, 75c; Breeders, $2. Either leather or golden. My golden breeders breed all 5-banded bees.
W. H. LAWS, - Lavaca, Ark.

Central Pennsylvania Bee-keepers!
Buy Root's supplies near home at catalog prices. Observatory hives, winter cases, etc. Also send for catalogs.
Prothero & Arnold, Du Bois, Pa.

Golden,
Adel,
Albino.

Texas Queens.

Dr. Gallup says they are the best he has in his yard.

J. D. GIVENS, Lisbon, Texas.

GERMAN CARP WANTED.

1000 this year's; 100 or more last year's. Prices must be reasonable. Send offers to

DR. WM. MOERSHEL, Homestead, Iowa.

Carp to be shipped in August or September.

Italian Queens, either golden beauties or 3-banded imported stock. Tested, 90c each; untested, 55c each; 6 for $3.00. One sample queen to new customer, 50c; breeders, $2.00 to $3.50 each. P. O. M. O. office, Lavaca. **E. A. SEELEY, Bloomer, Ark.**

No cheap Queens to sell; but the best.

Golden 5 band, or 3 band from imported mother. Untested, 75 cts.; tested, $1.00.

L. BEAUCHAMP, Box 613, San Antonio, Texas.

QUEENS. I have 500 untested, 3 or 5 banders, 45c each; tested 3-banders, 70c each. They are fine large queens, and are free from all diseases. Write for wholesale prices. M. O. office.

DANIEL WURTH, Falmouth, Rush Co., Ind.

"WATCH POUDER'S AD"

SEE THAT WINK?
BEE SUPPLIES.

Root's Goods at Root's Prices.

Pouder's Honey-Jars and every thing used by bee-keepers. Low freight rates; prompt service. Catalog free.

WALTER S. POUDER,
162 Mass Ave., Indianapolis, Ind.

Tested Adel Queens.

Fifty Cents Each.

My new (1897) book on queen-rearing, giving a method for rearing queens in a brood-chamber while the queen is present, will be mailed free to all who purchase queens.

Henry Alley, - Wenham, Mass.

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Shipping-cases for Honey,

AT THEIR PRICES—THE FINEST MADE.

CASH FOR BEESWAX

M. H. HUNT, Bell Branch, Mich.

QUEENS BY RETURN MAIL.

Daughters of best imported queen mother, warranted purely mated to drones of imported stock from a different source; hence, a direct cross. 12 years as a honey-producer on a large scale has taught me what good queens mean to the producer, as well as how to rear them. Price of queens, 50c each. Safe delivery and satisfaction, or money refunded.

L. H. ROBEY, Worthington, W. Va.

FOR SALE.—15 colonies of hybrid bees in simplicity hives, $2.50 each. They must be sold.
E. D. BARTON, East Hampton, Conn.

WARRANTED Three and Five Banded Italian Queens at 50 Cents each.
GEO. W. COOK, Spring Hill, Kan.

FOR SALE.—Italian queens, 50 cents each.
MRS. A. A. SIMPSON, Swarts, Greene Co., Pa.

FOR SALE.—100 colonies of Italian bees and fixtures, and honey crop in a never-failing locality, at a bargain. Address LOUIS WERNER, Edwardsville, Ill.

SWEET-CLOVER SEED in the hull, raised this season, 1897, at 4 cts. per pound. Address
JOSEPH SHAW, Box 64, Strong City, Kan.

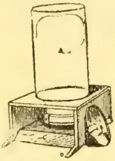
Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Don't Neglect Your Bees.

Bee-keeping may be made uniformly successful by judicious feeding. It is just as important with bees as with other stock.



Success in feeding depends very much on the feeder used. When you have tried the

Boardman Atmospheric Entrance-feeder

you will be convinced of this.

For descriptive circulars and price list, address

H. R. BOARDMAN, East Townsend, Ohio.

Wants and Exchange Department.

WANTED.—To exchange 16-section non-drip cases at Root's prices, laid down at your station, for fancy comb honey at prices to suit the times. Also second-hand 60-lb. cans, 2 in a case, valued at 25 cts. per can, freight paid, for gilt-edged extracted honey. Special price on quantity lots.
B. WALKER, Evart, Mich.

WANTED.—To exchange Parker shotgun (new) for high-grade bicycle, organ, or best offers.
R. A. PROVINS, Point Marion, Pa.

WANTED.—To exchange some fine collie shepherd pups for any thing useful. I also have some fine pigeons and a fine blood-hound pup to trade.
CLAUD BRILLHART, Oakwood, Paulding Co., Ohio.

WANTED.—To exchange 140 colonies of bees, with all fixtures belonging to a first-class apiary, for good horses and mules.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange first-class incubator for comb or extracted honey, potatoes, or offers.
F. W. DEAN, New Milford, Pa.

WANTED.—To exchange a Burkard auditorium-size guitar, in good order, for bees, bee-keepers' supplies, or bicycle. W. A. PFEIFER, Mauston, Wis.

WANTED.—A second-hand heater for greenhouse, Hitchings preferred. Capacity No. 3 or 4.
R. GAMMON, Rockton, Winnebago Co., Ill.

Black and Hybrid Queens for Sale.

Young hybrid queens, 15 cts., and mismated, 25 cts.
C. G. FENN, Washington, Conn.

A few hybrid queens from natural swarms, by return mail, at 25 cts. each. W. A. SANDERS, Elberton, Elbert Co., Ga.

About two dozen nice mismated Italian queens for sale at 25c each, or 5 for $1.00. They are all young and prolific, and bred from first-class mothers.
W. F. STUART, Box 415, Ottawa, Kan.

THE S. & H. CO.
desire to enter into correspondence with all contemplating the purchase of anything in their line. They think they have one of the most complete assortments of strong, smooth, healthy,

FRUIT AND ORNAMENTAL TREES

Small Fruits, Vines, Shrubs, Roses, Bulbs, Hardy Herbaceous Plants, Greenhouse Stock, Etc., on the market and invite all buyers to come and see for themselves. They are to be found at the old stand where they have labored faithfully for the past 43 years to build up a reputable business. Catalogues free.

Address **THE STORRS & HARRISON CO., Box 8, Painesville, O.**

IF YOU WANT BEES

that will just "roll" in the honey, and that are wonderful red-clover workers, also gentle to handle, and exceedingly hardy, then try **MOORE'S STRAIN OF ITALIANS,** the result of 18 years of careful breeding.

Warranted queens, 75 cts. each; 3 for $2.00; per doz., $7.00; tested, $1.00; select tested, $1.50; select warranted, $1.00. Strong 3-frame nucleus, with warranted queen, $2.50. Safe arrival and satisfaction guaranteed. Circular free. Those who have never dealt with me I refer to A. I. Root, who has purchased of me over 850 queens.

J. P. Moore, Morgan, Pendleton Co., Ky.

HONEY-JARS, One-pound, sq. flint-glass, $4.50 per gross, with corks.

LABELS, 60 cts. per gross.

Cartons, shipping-cases, and everything in the apiarian line. Catalog free.

ITALIAN QUEENS, 60 cents each.

Apiary,
Glen Cove, L. I.

I. J. STRINGHAM,
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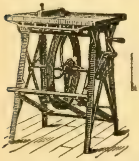
SQUARE GLASS HONEY-JARS,
ROOT'S GOODS AT ROOT'S PRICES,

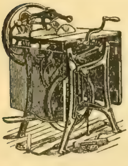
Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "**Practical Hints**" will be mailed for 10 cts. in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.



Read what J. I. PARENT, of Charlton, N. Y., says — "We cut with one of your combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalog and price list free. Address W. F. & JOHN BARNES, 545, Ruby Street, Rockford, Ill.

When more convenient, orders for Barnes' Foot-power Machinery may be sent to
THE A. I. ROOT CO., Medina, O.



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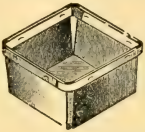

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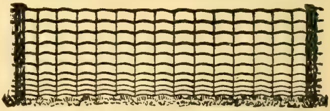

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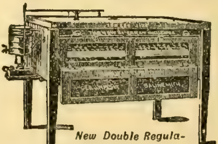

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Honey Column.

CITY MARKETS.

NEW YORK.—We quote you the market this day, subject to fluctuations, as follows: Fancy 1-lb. sections clover comb honey, 12½@13; No. 1 white, same, 11@12; No. 2 white, same, 10; mixed white, same, 9; fancy buckwheat, 9@10; No. 1, 9; No. 2, 8; 2-lb. sections, 1@2 cts. less per lb., as to quality. White extracted clover, 5½@6; basswood; 5@5½; light amber basswood, 4½@5; amber and mixed, 4@4½; buckwheat, 4. Beeswax, fancy, 28; average, 26@26½. On account of the continued warm weather the demand for comb honey is rather light, but expect as soon as we get a little cooler weather to see an improvement. Notwithstanding the warmth, we have had quite a number of small lots of new comb honey, and they found ready sale on account of the market being quite bare, old comb honey being cleaned up pretty well. The prices rule about the same as last season, and do not anticipate any better prices, on account of the good crop that California produced this year.
CHAS. ISRAEL & BROS.,
Sept. 8. 486-490 Canal St., New York City.

DENVER.—We find our honey trade improving since the first of the month, especially with extracted. Comb honey was never known to sell as low as it is now, and it is the farmers and small bee-keepers that have ruined the price by selling to the stores at any price they were offered. The highest possible price we can quote fancy white comb honey is 10c; and No. 1 white at 9c; No. 1 white extracted, 4½@5; good clean beeswax, 25.
R. K. & J. C. FRISBEE,
Sept. 6. Lock box 1014, Denver, Col.

MILWAUKEE.—The receipts of new-crop honey are beginning to come in, and the quality improved. The supply is not equal to the legitimate wants of our trade, and with improved conditions of trade we expect to sell more than last year. The demand so far is not heavy, but we feel, to encourage our shippers, that it will come. We quote white No. 1 comb 1-lb. sections, 11@13; amber, 8@10; white extracted, in bbls. and kegs, choice, 4½@6; dark or amber, in bbls. and kegs, 4@6; beeswax, 25@27.
A. V. BISHOP & CO.,
Sept. 6. Milwaukee, Wis.

CHICAGO.—Comb honey sells a little more freely, yet receipts are in excess of sales, and some shippers of small lots get impatient at what seems a long delay in getting returns, yet it can't be forced without detriment to general interests. Best grades of white comb bring 12c; white but objectionable, 10@11; amber and dark, 7@9; extracted white, 5@6; amber, 4@5; dark, 3½; beeswax, 26@27.
R. A. BURNETT & CO.,
Sept. 6. 163 South Water St., Chicago, Ill.

CINCINNATI.—Demand is fair for extracted and comb honey, and considerable honey is arriving, but not much more than is justified by the demand. As the range of prices, we quote for choice white comb honey 11@13. Cincinnati is no market for dark comb honey. Extracted sells for 3½@6, according to quality. Beeswax is in good demand at 20@25 for good to choice yellow.
CHAS. F. MUTH & SON,
Sept. 7. Cincinnati, O.

DETROIT.—Best comb honey, 10@11½; best extracted, 5@5½; beeswax, 25@26.
Sept. 7. M. H. HUNT, Bell Branch, Mich.

ALBANY.—New-crop comb honey now arriving, but demand quite limited as yet. We quote fancy white at 12@13; fair to good, 10@11; dark, 8@9. Nothing of any account doing in extracted. No beeswax on hand.
CHAS. MCCULLOCH & CO.,
Sept. 7. Albany, N. Y.

NEW YORK.—New-crop comb honey arriving more freely, and demand good. We quote fancy white, 12@13; off grades white, 10@11; buckwheat, 9@10. California extracted selling fairly well, while all other kinds are neglected. We quote California white, 5@5½; light amber, 4½@5; Southern, 50@55 per gallon; beeswax dull, and easy at 26.
HILDRETH BROS. & SEGELKEN,
Sept. 7. 120-122 W. Broadway, New York.

COLUMBUS.—Fancy white clover, 12½; No. 1, 11. Arrivals no heavier; demand better, but no improvement in prices. Large sales are impossible, and as yet are having no trade from near-by towns.
THE COLUMBUS COMMISSION & STORAGE CO.,
Sept. 6. 409-413 N. High St., Columbus, O.

BOSTON.—We quote you our honey market as follows: Fancy white comb in 1-lb. sections, 14; No. 1, 12@13; white extracted, 7; light amber extracted, 5@6; beeswax, very light supply, 27. Good demand.
BLAKE, SCOTT & LEE,
Sept. 7. Boston, Mass.

KANSAS CITY.—We quote No. 1 white comb, 11@12; fancy amber, 10@11; No. 1 amber, 9@10; fancy dark, 8@9; No. 1 dark, 8; white extracted, 5½@6; amber, 4½@5; dark, 4@4½; beeswax, 22@25.
C. C. CLEMONS & CO.,
Sept. 7. Kansas City, Mo.

MINNEAPOLIS.—No. 1 remains same—no change, 11@12. Other grades accordingly. Supply equal to demand.
S. H. HALL & CO.,
Sept. 6. Minneapolis, Minn.

ST. LOUIS.—We have no special remarks to make in regard to the honey market. Prices are nominal at last quotation. Weather is too hot for the sale of honey. Beeswax is a little firmer, being 24½@25 for prime stock.
WESTCOTT COMMISSION CO.,
Sept. 9. 213 Market St., St. Louis, Mo.

CLEVELAND.—We quote selling to-day as follows: Fancy white, 13; No. 1 white, 11@12; fancy amber, 10; No. 1 amber, 8@9; buckwheat, 6; fancy white extracted, 6½; beeswax, 25.
A. B. WILLIAMS & CO.,
Sept. 8. 80-82 Broadway, Cleveland, Ohio.

PHILADELPHIA.—Honey coming in freely, and some call for comb, but the hot weather of the last few days stops sales somewhat. We quote fancy white comb 13½; No. 1 white, 11@12; no dark comb in yet; white extracted, 5½@6; amber, 4@5; beeswax, 25. We are producers of honey; do not handle on commission.
WM. A. SELSER,
Sept. 7. 10 Vine St., Philadelphia, Pa.

FOR SALE. — 25 bbls. extracted pure white-clover honey, very light in color, and of finest quality, at prices as cheap as the cheapest, quality of goods considered. Can put it up in any style of package. Write for price, stating quantity desired.
EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—A lot of good extracted clover honey in 60-lb. cans. JNO. A. THORNTON, Lima, Ills.

WANTED.—To buy quantity lots of fancy comb honey in non-drip cases. B. WALKER, Evart, Mich.

FOR SALE.—Alfalfa honey, light amber, in carload lots. 3¼ cts. per lb.; sample, 10 cts.
JOHN NIPPERT, Box 1051, Phœnix, Arizona.

FOR SALE.—5000 lbs. extracted white-clover honey; water-white and good body, in packages to suit customers. Cheap for cash. J. B. MURRAY, Ada, O.

FOR SALE.—Pure honey.—Clover, extracted, 6½ cts. per lb. Buckwheat, extracted, 4½ cts. per lb.
I. J. STRINGHAM, 105 Park Place, N. Y. City.

SWEET-CLOVER SEED in the hull, raised this season, 1897, at 4 cts. per pound. Address
JOSEPH SHAW, Box 64, Strong City, Kan.

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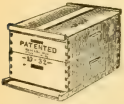
I have a large number of nuclei containing fine tested Italian queens of this year's rearing, and have decided to use them in helping to build up the circulation of the **Review**; hence offer a queen and the **Review** one year to *new* subscribers for only $1.50. **Review** alone, $1.00; queen alone, $1.00. If several queens are wanted, write, and the price will be made according to the number. As a rule, orders are filled by return mail, and there is never a delay of more than three or four days, and that on large orders.

W. Z. HUTCHINSON, Flint, Mich.



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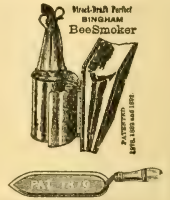
January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



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GLEANINGS IN BEE CULTURE

A JOURNAL · DEVOTED · TO · BEES · AND HONEY · AND HOME · INTERESTS ·

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.

$1.00 PER YEAR MEDINA · OHIO ·

VOL. XXV. SEPT. 15, 1897. NO. 18.

STRAY STRAWS
FROM DR. C. C. MILLER.

A BY-LAW of the Central Texas Association reads, "All white persons interested in apiculture are eligible to membership in this Association."

FOUR APIARIES are reported in *American Bee Journal* by Prof. Cook, aggregating 1535 colonies, and yielding 90 tons—an average of 117 lbs. a colony.

SWEET-CLOVER ointment. "A handful of sweet-clover leaves *fried* in about half a teacupful of fresh lard or hen's oil."—*Mrs. Lambrigger, in American Bee Journal.*

APIS DORSATA was discussed at Buffalo, and I didn't have a chance to say a word against it—was temporarily in the chair. Wonder if that was a put-up job between Pres. York and the dorsata men. [See editorials.—ED.]

THE SOCIAL PART of the Buffalo convention was probably better than any of its predecessors. It was worth going a long way to meet some of the men that were there. Some grand good men are in the ranks of bee-keepers. [Just so.—ED.]

AN UNPRECEDENTEDLY heavy honey-flow is given, p. 636, as a possible reason for excessive swarming. Wouldn't it be better to substitute "long" for "heavy"? We are generally told that bees swarm more in a moderate than in a heavy flow. [In answer to your question I would say "I don't know."—ED.]

F. L. THOMPSON, p. 629, wants me put out because I don't want the bother and worry of making my own foundation. Now see here, F. L., just you have that little scheme carried out, and the first thing you know some other fellow will want you put out because you don't want the bother of making your own sections.

RETURNED SWARMS, we are told on p. 636, "will swarm as often as you hive them, and as long as the honey season continues." That may do for a rough statement, and even for an exact statement, providing the season closes about two weeks after the first swarm, for in two or three weeks the last young queen will have emerged and the swarming will be over. [I *meant* the statement in question to apply in a general way. I accept your emendation.—ED.]

EARL C. WALKER, p. 625, says that, in transferring, there should not be a tight fit between hive and driving-box. That agrees with views held across the water, and foreign journals have had pictures of transferring in which the driving-box rested on the hive at an angle of nearly 45°, so the queen could be seen when she went up.

PROF. COOK, p. 622, says he voted against amalgamation, not because he was opposed to it, but because he thought the change should not be forced upon those opposed to it. If others did the same way, it can easily be understood that amalgamation would fail with a large majority in its favor. But, say, professor, how about forcing upon us who *did* want the change, something we didn't want?

PREVENTION of after-swarms, H. W. Savage says he accomplishes (*American Bee Journal*) by hiving swarm on old stand, putting supers over excluder, then setting old hive on top. "The afternoon of the second day, the old colony will become so depleted of bees (if the weather has been favorable) that they will give up swarming any more, and will begin to carry out drone brood. Then carry them to a new stand."

FRENCH BEE-KEEPERS are in the throes of a discussion as to uniformity in size of frames. A frame 30 by 40 centimeters ($11\frac{13}{16}$ by 15¾ inches is likely to win; but that's inside measure, and it is wisely argued that there can be no exact uniformity without a settled outside measure. That would be something like 16.3 by 12.3 in., making a capacity about 28 per cent larger than the Langstroth-Simplicity. The British standard, 14 by 8½, is about ¾ as large as the Simplicity. [The French are believers in large frames. They follow Dadant, you know.—ED.]

PROF. COOK has been sampling with others some sage honey, "and all with one accord have pronounced it the best honey they have ever eaten."—*American Bee Journal.* Additional proof that locality rules taste. Sage is best to the Californian, clover to the Northerner, eucalyptus to the Australian. And it seems further, that, when a man changes his locality, he changes his taste. [In York State very many greatly prefer buckwheat to any white honey produced. Nine-tenths of all buckwheat is produced in York State. As you say, locality rules taste.—ED.]

DOOLITTLE says, p. 635, that nearly all of our best bee-keepers agree that Italians are not inferior to blacks for comb honey. I think that's correct, and I wonder whether those who insist that Italians seal comb with a watery look have a special strain. I've had several strains of Italians, but they all make nice white combs. [I have seen lately a good deal of comb honey made by black bees. To my notion it is just a *little* whiter than that made by the average Italians. In *quality* produced they (the Italians) are certainly not inferior. Doolittle told me he had a strain of *yellow* Italians that cap just as white as black bees.—ED.]

TRAVEL-STAINED SECTIONS are not good to sell—only to eat. The editor prefers them for his eating, and perhaps all do who know enough. Would it not be worth while to take some pains to educate the public in this regard? Even where looks count for every thing, it's just as well to have only one side white, for the other side is not seen after the honey is placed on the table. [If the consumer could sample comb honey by *taste* rather than by the *eye* before buying, the travel-stained honey would soon work its way to the front. I bought some large California pears that looked, oh! so nice! but when I came to eat them they tasted like insipid pumpkins. I then wished I had bought home-grown Bartletts that looked inferior. I am educated on the pear question.—ED.]

QUITE A PRETTY FIGHT that has been between F. L. Thompson and the editor about the Rietsche press. Although it may never be settled without arbitration, the discussion has brought out some important points interesting to all. In spite of the evident desire for fairness, there crops out occasional prejudice on both sides. Thompson hardly wants to see that bee-keepers have largely given up making *brood* foundation, and ye editor insists that a Rietsche press must be saddled with express charges from Germany. If he believed with Thompson, the presses would be made in this country, and at any rate they could come from Germany by freight. [This one item of express charges was only a small part of the whole matter. The principal item was the great difference in *quality* of the two foundations.—ED.]

BREEDING FOR LONGER TONGUES.

BY PROF. A. J. COOK.

The following inquiry appeared on p. 462, current volume of the *American Bee Journal:* "Do you suppose it possible to increase the size—and especially the length of tongue—of the races of bees we now have? If possible, do you think it desirable?" I was very much surprised to find that seven answers implied doubt or impossibility regarding the first part of the questions. The majority, however, and they the leaders in our ranks, like Elwood, R. L. Taylor, Dr. Mason, and the Dadants, give an emphatic "Yes." My own answer was this: "Yes, I have no doubt of it, and I believe it is desirable." I believe that scientific research abundantly warrants us in giving a positive categorical answer to this question, in accord with the majority. I wish briefly to give my reasons not only to inform those who may not have had time or opportunity to study in such lines, but also in the hope of influencing some one to undertake a line of work full of promise to apiculture.

When Schwann discovered that the cell was the basis of all tissue, whether animal or vegetable, and that the animal and vegetable cells are essentially alike, he made a discovery of great practical importance. Of hardly less value was the discovery of the law of the "conservation of energy." Darwin's researches proved that the laws of breeding of animals and plants are essentially the same. Every breeder of plants and animals to-day recognizes and acts upon this truth. We know now of a truth that all organisms, plant and animal alike, tend to vary. We also know that close breeding in the line of any special variation tends to make that variation more prominent, and at the same time to fix it. Thus, such men as Bates, Boothe, the Collens brothers, and Bakewell, gave us our shorthorns and improved sheep. In like manner our wondrous Hamiltonians and marvelously modified breeds of swine have been developed in a single generation. What is true of our higher vertebrates is certainly true of insects. True, some animals tend to vary more than others, and probably the characteristics of some would be more quickly set by careful selection than others. But that all are subject to these laws, and would respond to their action, there can be no shade of doubt. That our bees, and especially the highly wrought and sensitive Italians, whose tongues have been already pushed out two one-hundredths of an inch longer than those of the black races, and that by the slow process of "natural selection," would be quick to vary and as quick to respond to the more severe artificial selection, seems to me more than probable. Two or three of the answers referred to, express belief that, "while it is possible to breed longer tongues, it is not practicable;" but I see no reason to hold such a view.

What is needed to succeed in this work is a man of great patience, quick observation, determined will, and absolute accuracy and honesty. It will take long years, hence the necessity of great patience. Slight variations must be detected, and used in the selection of breeding-stock; therefore close powers of observation are called for. Often the hardest effort will seem to advance the undertaking but little, and possibly none at all; yet this must not breed discouragement, and thus the necessity for a determined will. The best men are likely to be biased in judgment when they are seeking some valuable end, and therefore the vision of the breeder must be clear and true.

THE METHOD.

A good tongue-gauge, accurate knowledge of the habits of bees, and good judgment to use this knowledge, and unflagging persistence—even in the face of seeming failure—are the implements that shall win in this struggle. The inclined-plane tongue-gauge used by me some years ago, and which won a medal at the Paris exhibition, is cheap and effective. Simply placed in the hives it will tell what colonies have longer tongues than others, and so what colonies should be used in breeding. Mr. J. H. Martin and others have also invented efficient and practical gauges by which the length of the tongues could be accurately measured. When colonies are found that show that the workers have tongues longer, even though but slightly so, than the average, the queens of such colonies should be used exclusively in breeding. If by use of any of the methods recommended for controlling mating as to male or drone bees, as by pruning drone comb, using drone-traps, securing early drones from desired colonies, or by working in isolated districts, both drone and queen can be selected; then the end sought would be brought nearer. In case the apiary were large, so that a large number of queens would be needed, then more speedy results might be expected. The tongue-gauge would surely tell which of the new colonies had retained or increased the desirable feature, and so which to use in subsequent mating or breeding.

Such an effort, intelligently and faithfully persisted in and carried out, would surely result in a greatly improved race of bees, and in as great advantage to our craft. The only question is, Have we the man with the required patience and persistence? This would be, in some ways, much easier than improving cattle, horses, and hogs, as the numbers produced per season would be immensely greater, though the greater difficulty in controlling mating would stand in the way of quick results. Who has the patience to do this valuable work?

NOTES.

One bee-keeper in San Diego Co., near Escondido, is reported to have shipped six carloads of honey this season. B. S. Taylor, of Perris, started with 154 colonies of bees, and has increased to nearly 200. He has taken ten tons of first-class extracted honey, and 6000 sections of fine comb. I have tested the latter, and never tasted finer. This has been a fine season in Southern California.

I was glad to read the Michigan foul-brood law in last GLEANINGS, and to note your and Mr. Hilton's kind words; for it was I who wrote the bill and secured its passage. Mr. Root, who had charge of the bill, was at one time a successful bee-keeper of Mason, Mich., and I think he was mayor of his city.

You seem to express doubt of the position that poisonous plants would not, as a consequence, secrete poisonous nectar. The plant is poisonous because the sap or tissue contains some toxic element. The nectar is secreted by glands which take elements from the sap, and form from these the sweet of the flower. The nectar is not the sap. The nectar is to attract insects to pollinate the flowers. Were it poisonous it would defeat its very purpose. Therefore reason, and, so far as I have been able to discover, observations as well, argue that nectar, even of poisonous plants, is non-poisonous. Honey, when eaten immoderately, or at all in rare cases, makes some people very ill. In the region of known poisonous plants, how easy to start a story of poisonous honey from such plants, and yet such story be utterly without truth! If the story dated back to Xenophon's time, how much more unworthy of credence! for scientific accuracy is much more common to-day.

It grieves me to the heart that our grand old friend Dr. Mason disagrees with me. It is pleasant to be in accord with such men, and sad that they should be in the wrong (?). I have only to say that I do not believe both Unions will survive. I do not think that there is room for both. I did not say we should resist the expressed wish of the members. I was in doubt. To save its life might warrant such a course. That is what advisory boards are for—to act in an emergency. I am firmly of the opinion that the two Unions should be merged into one; and it begins to be very clear to me which one will survive. In this opinion I wish to blame or impugn the motives of no one. I see no reason to accuse any one of acting in any way other than what he believes wise and right.

Claremont, Cal., Aug. 16.

* * *

STRONG COLONIES.

Bees Hanging Out; Wide Entrances; Colorado vs. Wisconsin; the Glorious Climate of the Former; a Valuable Article.

BY M. A. GILL.

Mr. Editor:—I was highly interested in your editorial remarks in the Aug. 1st issue on the advantages of big colonies; also in regard to "getting bees started in sections," and to "bees hanging out;" and with your consent I will give to your readers some of my ideas along these same lines.

"Strong colonies" has always been one of my hobbies; and while producing extracted honey in Wisconsin I secured them by using a two-story 8-frame hive for a brood-nest, and was troubled very little with swarming; but since coming to Colorado, and producing comb honey exclusively, I find that, while colonies in 8-frame hives may be a little more prone to swarming, as good results may be obtained with this hive as with any other if the colony is so managed that the 8-frame hives are used for breeding, instead of for storing surplus.

I find that, early in the spring, the queens (none but prolific ones are allowed to live) will stake off and occupy the room they need, and increase the area of brood as the strength and warmth of the colony require. Then while every condition is on the ascending scale, when the brood is clear up to the top-bars, is just the time to put on the first super, the next super being put on when the same condition is reached again, never allowing the bees to quite reach the zenith of their ambition.

As a proof that there is scarcely any limit to strong colonies so managed I will say that I have five colonies (four of which did not swarm, and one that was made by uniting two first swarms) among my bees, and they are now working in their eighth super, or 40 supers for the five colonies.

In this apiary are 117 colonies, about 40 of which have a 10-frame capacity. Now, isn't it provoking that only one of the five is a 10-framer, and four of them just the common 8-frame Dovetailed hives? But, you know, Josh Billings said, "Never argy agin success," so I won't; but you may if you want to.

But if a colony gets a lot of sealed honey between the brood and top-bars, and gets the corners and sides of the hive well stored with sealed honey, and has been given so small an entrance that it has *compelled* them to learn to hang out, you may put on supers, give bait sections, uncap honey, etc., but they won't prosper. You know Billings said, "If a man gits a start down hill, it seems as if the whole world is greased for the occasion;" and the colony mentioned above seems to be in the same condition, although Nature's storehouse is running over with sweetness. The only way I can successfully break the habit is to exchange this colony's super for one from a colony that has a super well occupied with comb-builders who will teach them by example that there is something in this world to do.

While traveling among the bee-keepers in the capacity of foul-brood inspector, I am often asked this question: "Gill, why do my bees hang out so?" and upon examination I find the bottoms nailed on tight, and the entrance-blocks turned the long way, and nailed to the entrance, and the hive standing out in the hot sun, with no shade whatever. Why should any sane man ask such a question, under those conditions? Why, I had rather set a hive up on stilts, and take the bottom clear off; and I sometimes do, for I go after my bees with mighty heroic treatment sometimes in order to break up these habits, for bees are not unlike us men who know it is very hard to leave off ruinous and bad habits when once they are well formed.

M. A. GILL IN HIS APIARY IN COLORADO.

Other people say to me, "I wish you would tell me why my bees *won't* go into the supers;" and on inquiry I find that a colony in an 8-frame hive has been allowed to swarm perhaps three times; the first swarm has been allowed to get into that clogged condition above mentioned, the parent colony has not yet rallied from the drain upon it, and the other two swarms are not yet strong enough to go above. As Edwin Bevins says in the last issue of the *American Bee Journal*, "Another fool question. Why do people expect bees to occupy supers until the conditions in the brood-nest and the strength of the colony warrant it?" All such men should follow the advice of Moses Quinby, when he says, "Confine your experience to pecks of bees instead of pints." Years ago I did a great deal of dividing, but must say that doubling up gives me more satisfaction.

I will give you a glimpse of one end of my Crescent Apiary, situated away over on this side of the Rockies, on the border of the desert. You will notice at my back, out through the timber, a growth about as high as a man's shoulders, and in full bloom. It is cleome, or the so-called Rocky Mountain bee-plant, of which there are acres and acres made to grow by the sub-irrigation from Grand River, that flows only about 20 rods to the right of the picture.

On the left, out through the opening in the timber, commencing within a quarter of a mile, are the farming and fruit lands, under a fine system of irrigation, among which are hundreds—yes, thousands—of acres of alfalfa!

The bees shown in the picture are doing finely. Another apiary, in the direction of the opening in the timber, and only four miles away, is doing and has done poorly during the entire season, while my other apiary, 117 colonies, out in the foot-hills, 15 miles from here, have increased from 58 to 117, and will give 200 24-lb. cases of comb honey this season. I bought them just at the close of the swarming season, or perhaps there would not have been so many.

To give you an idea of the resources of this valley that has been redeemed from the desert in the last 14 years, I will say that the railroads estimate that there will be shipped from this county 1000 carloads of fruit this season.

While I shall always have a kindly remembrance for old Wisconsin, I have no desire to exchange this glorious climate and my wife's health for the rigors of a Wisconsin winter.

Grand Junction, Colo., Aug. 12.

[I indorse so thoroughly every thing that is said by friend Gill that there is really nothing that I can say by way of comment except to add that the time is coming when honey-producers will soon cry for larger entrances to their hives. We expect to make our hives next year so that the entrances will be an inch deep, and the full width of the hive. A small entrance can't be enlarged ; but a large one can be contracted if necessary. Large hives and large entrances capable of contraction will do much to solve the problem of swarming for the future, I believe.—ED.]

* * *

AMONG THE MICHIGAN BEE-KEEPERS.

Square Bottom-bars ; Producers Selling Their Own Honey ; Large Hives.

BY A. L. BOYDEN.

While looking over Mr. Morrison's yard I noticed that he used bottom-bars $\frac{3}{8}$ inch square ; but instead of nailing them in in the usual way with a flat side down he places them in with the angle or corner down, giving as his reasons that the bees attach the combs better, and it leaves no space underneath, in case a bar should sag, for moths to hide. It seems to me the $\frac{3}{8}$-inch bottom-bars should have a more extended trial, and I am inclined to think the manner of nailing them in, as used by Mr. Morrison, may be an advantage.

BACK TO MR. WING'S APIARY.

Early next morning Mr. H. S. Wheeler drove down to Mr. Morrison's yard, having learned that I was down there. I had planned to go back by Mr. Wing's apiary, and so, bidding adieu to friend Morrison, I loaded my wheel into Mr. W.'s buggy, and started back with him. Not being able then to go to his yard our visit was made mostly as we drove back to Mr. Wing's. Mr. Wheeler uses the Gallup frame, I believe, working entirely for comb honey. Knowing of a sale he made of part of his crop in August, 1896, at 12½ cents per lb., I mentioned that it was a fortunate deal, for many sold at much less only a few weeks later. He surprised me by saying he received more for the rest of his crop than he did for the lot I spoke of. Instead of selling his honey outright to some large concern, or sending to a commission house, Mr. Wheeler has sold largely to grocers and large consumers direct, or through some one employed by him, mainly in cities outside of the great honey-producing district. It certainly would pay the average bee-keeper to spend more of his own time in selling direct to grocers and consumers.

Before reaching Mr. Wing's yard we met Mr. Wing himself. Turning about he drove back with us to his yard. Mr. Wheeler soon left us, and then we went out to examine some of the supers. No doubt, to the bee-keepers of that section the season has seemed a failure when compared with previous years ; but by the appearance of the supers in Mr. Wing's yard I should say he has taken a better crop this year than the average bee-keeper of Southern Michigan has for a number of years. To one who has ever had the "bee fever" the incidents related by these men regarding the wonderful flow from willow-herb in former years are very interesting indeed. While they were somewhat discouraged, I felt much of my former enthusiasm coming back.

Near by is the yard of E. S. Frost, where I also stopped ; but I failed to see him there or at his home, some six miles south.

I next wheeled over to Breckenridge, where a number of bee-keepers are located, and was soon at the home of N. E. Doane. Not many years ago Mr. Doane located here with a small apiary. His remarkable success led a good many to enter the field, so large numbers of bees are kept in that section. Very naturally, his neighbors have come to him for hives, and this year he has handled nearly a carload of supplies.

Readers of GLEANINGS will remember that The A. I. Root Co. has been, the past year, supplying foundation without paper, when desired. Mr. Doane, as well as his wife, who assists him a great deal in his work, very much prefers foundation without paper, as it saves so much time, and the foundation has invariably reached them in good order without paper.

LARGE HIVES.

Mr. Doane is amused by any discussion as to the merits of eight-frame versus ten-frame hives. He calls them both *small*, and a visit to his yard shows a large number of *twelve* and *sixteen* frame bodies. I can not explain his system here, but it seems to have some decided advantages. He says: "It's the honey I am working for," and I should think he gets it too.

From his place I went to Saginaw, expecting to visit one or two bee-keepers there, but failed to see them. I therefore started homeward, feeling well repaid for my visit to the willow-herbers.

AUSTRALIAN LUCERNE HONEY, AGAIN.

BY E. TIPPER.

Mr. Editor:—When, on May 15, 1896, I innocently penned those few fraternal lines to you containing a few items of local bee-news, I little thought I was laying myself open to such monstrous charges as appeared in your issue of May 1st of this year, from Michael Scobie. Notwithstanding your quite sufficient reply, I, being accused of "abuse" and "slander," feel I must reply.

I spoke of the lucerne, or alfalfa, because there had been some discussion in your journal then about alfalfa honey. In the month of March, 1893 (our autumn), a flood of a magnitude not known for at least some seventy years, swept the valley of the Hunter clean. It was not till the following August (our spring) lucerne could be planted; so in the summer following (1894–'95), the lucerne being young, there was very little honey from that source. The following season (1895–'96), and of which I wrote to you (my letter being dated May 15th of that year), the lucerne gave a good flow of honey, but, as I have stated, it was thin. We will now go back.

My place of business is in the most central part of West Maitland — right in the heart of this lucerne-growing district. In 1893 I added to it a honey-depot. Through the flood alluded to, no honey came for my bees. I purchased honey from the interior, and worked up a good trade. In 1895–'96 I gathered a few hundred pounds from my own bees (lucerne honey); also bought locally from several of the best-known local apiarists, including sections from Mr. Munday. But it was, as I have stated, all *thin*. My customers complained, and the trade was falling off. I tried to thicken it by leaving it in an upper room under an iron roof, but without avail. While in Sydney I mentioned the matter to a bee-scientist, who replied that lucerne is a clover, and all clovers yield thin honey. Strange at our local show that year, honey (said to be lucerne) of a density much greater than my experience had found it, gained prizes. The members of my family and I examined it. We said and say nothing. As I am in no way connected with any supply or queen-rearing business, but must keep bees or cease to be editor of the *Australian Bee Bulletin*, I removed my apiary some 125 miles away from Maitland, to be among the flowers whose honey I found to be in most demand among my customers, leaving my sons to manage my business.

This year there has been a great lucerne flow on the Hunter. Up to the present I have not tasted the honey; but at the Musselbrook show, some six weeks ago, I was shown some nice-flavored dense honey which I was told was lucerne honey from Maitland. The conclusion I had to arrive at was that the lucerne yields thin honey the two first years after it is planted. Then, as Mr. Scobie says, as the plants become strong and deep-rooted, the honey becomes more dense. This may be a very important bit of knowledge gained, that may come in very useful to many an apiarist, and who may thus become indebted to Mr. Scobie for attacking me and thus bringing it out. I have no wish, no interest, no desire, to disparage lucerne honey. My home, my children, and what I have worked for for years, are at West Maitland, the center of the Hunter Valley, and I intend starting another apiary there in the spring. I feel sure that all who read the short remarks I made will say it was done in the spirit of truth.

Maitland, N. S. W., June 26.

POISONOUS HONEY.

BY T. C. POTTER.

Mr. Root:—I inclose you quite a formal and exhaustive treatment of the question of poisonous honey, which I cut from the August, 1896, number of the *American Druggist and Pharmaceutical Record*. You may have seen it; but as it goes into the subject so far, referring even to ancient classical authorities, I thought you might prize it and be glad to copy it in GLEANINGS, or at least file it away among your references for discussions upon this subject, which, like the ghost, never downs.

Indianapolis, Ind., July 3.

[Just as I was getting ready to start for the Buffalo convention the above came to hand. As I have not space to print all of the article in question, nor time to condense it, I have asked our stenographer, "W. P. R.," to do the latter. It is an important matter, and is worthy of all the space it takes.—Ed.]

The article in question is by Mr. Lyman F. Kebler, Ph. C., B. S., Philadelphia. It is, I believe, one of the fullest and most comprehensive reviews of the subject we have. While space forbids a reprint of the whole article, I will mention some of its points.

Mr. Kebler tells the familiar story of the trouble Xenophon's soldiers had with unwholesome honey; also similar quotations from Strabo, Pliny, and others, to the same effect. Nearly all the references to poisonous honey point to Asia Minor as being the home of the plants producing it. He says that at Abaza, near the Black Sea, 25 tons of "mad honey" is gathered annually for shipment, to be added to intoxicating liquors in order to increase their effect. Perhaps this suggests

"Jersey lightning" to the writer, for he immediately says that not less than eight cases were reported in New Jersey last year (1895). In one case the poisoning was on a wholesale scale, fourteen being affected, six of them severely. None died. At Branchville, S. C., twenty persons were affected, three fatally.

In speaking of the Princeton poisoning, the writer says:

> The sections of comb honey in the writer's hands were carefully examined externally, and found to possess a normal physical appearance. One section would not have aroused the least suspicion in odor, color, or taste; but another section was quite dark, reddish brown, possessed a nauseating odor and a pungent, burning taste in the back of the mouth and throat, in a measure resembling the first sensations of aconite. A number of persons were invited to take a little of the honey, its character being unknown to them; all immediately began to cough, and question the quality of the product. A third section was entirely eaten by the writer and another person in a day and a half with no ill effects. A small portion of one side of the comb possessed a most pleasant flavor, while the remainder faintly resembled section two above. The producer was not certain that all of the sections delivered to the writer were poisonous.

Mr. Kebler then describes the effect of this honey on a cat. He says:

> The animal could scarcely be induced to move; and when motion was attempted, first the fore limbs would fail, and then the back limbs would give way. First one portion of the body would sway in one direction, then the other portion in another, reminding one of a highly intoxicated person. Had the entire dose been retained, death undoubtedly would have followed. As it was, the cat had regained her normal condition only at the end of 24 hours.

The physician who attended the persons afflicted with similar honey, writes:

> Only two persons partook of the honey; all the rest of the family and the servants ate of each of the other articles served for breakfast, and were not in the least affected. Mr. and Mrs. Chambers took but a small quantity, yet each noticed a peculiar, pungent, burning taste in the comb as soon as it had passed their lips. In 15 or 20 minutes afterward Mrs. Chambers was taken with nausea, abdominal pain, and vomiting, soon followed by loss of consciousness, coldness of extremities, feebly acting heart, and complete collapse. While ministering to her, Mr. Chambers, who had also experienced the initiatory symptoms of pain and nausea, suddenly exclamed, "I can not see," and soon sank in a state of syncope on the floor. In each case the symptoms were similar — retching, vomiting, purging, acute gastric and abdominal pain, and continued cramps for some hours, with surface coldness, deadly pallor, and the general symptoms of collapse.

No deaths resulted. Many plants are mentioned as being noxious, but they seem to be very rare, and far apart. *Kalmia latifolia* is mentioned as being bad. While this writer says no case of poisoning from heather has been reported from Scotland, where this plant (*Ericaceæ*) is perhaps the chief source of honey, he still advises bee-keepers in New Jersey, where this plant abounds, not to put hives where bees can have access to it.

The reading of Prof. Cook's article, just preceding, makes the following quotation necessary, as it seems to refute, in one particular, what he says:

> When the poison is an alkaloid, as gelsemine, the problem is easily solved. The bees simply collected nectar from certain narcotic plants. But some one argues that it is impossible for these little creatures to collect and store a poison and not be killed themselves. There is scarcely a narcotic herb that does not give support to some form of animal life. What is nourishment and life to one is frequently poison and death to another. Many of General Braddock's horses perished from eating leaves of the laurel during the month of June, 1755, a few days before his defeat, yet pheasants will eat and thrive on the buds and leaves of the kalmia latifolia in times of scarcity; but their flesh becomes so permeated with the poisonous principle that persons have frequently been poisoned by eating it. Such a large number of cases of poisoning from this source at one time occurred in Philadelphia that the mayor was compelled to act by prohibiting the use of pheasants for food. Again, who can positively state that the mortality of bees is not increased in poisonous pasturage?

All who desire to read the article in full can doubtless get it by addressing the journal referred to. It is printed in New York.

* * *

NOTES BY THE WAY.

With the Bee-keepers at Rocky Ford and Denver, Colorado.

BY J. T. CALVERT.

On my way back from California I stopped four or five days in Colorado. I spent a very pleasant day at Rocky Ford with Henry F. Hagen, quite an extensive bee-keeper who has for several years been supplying the bee-keepers of that vicinity with their hives and supplies. Mr. Hagen produces comb honey exclusively, and uses a section 4½ inches square, 7 to foot wide, on T tins, in the regular Dovetailed super, made ⅛ inch deeper to provide for shrinkage in their very dry climate. He prefers this section for much the same reasons that have been urged in favor of the 4x5x7-to-foot Danz. section—it makes a pound to the box, with a thinner comb and larger comb surface. He has had no trouble in selling all the honey he could produce, and much more that he has bought in that vicinity at good prices. In fact, he was behind on orders when I was there, to the extent of nearly a ton.

Honey in this region is gathered almost exclusively from alfalfa. There was a great deal of cleome, or Rocky Mountain bee-plant, in bloom, and bees were gathering some honey from it. This honey is darker in color, and stronger in flavor. The bees seem to prefer the alfalfa; and the great areas of this clover, with the beautiful blue flower, generally furnish abundant pasturage. We visited a number of bee-keepers in and around Rocky Ford, most of whom follow Mr. Hagen's methods. A few bees might be seen at nearly every farmhouse. I was assured that, within a radius of five miles, there were at least 2000 colonies of bees. In many parts of the country we should consider this overcrowding; but most of these bees seemed to be getting plenty of honey. Those surrounded by alfalfa-fields were doing much better than were others in town with less of this source of their best honey near at hand. This strip of land, several miles wide, and lying to the east and west of Rocky Ford, and furnishing pasturage for thousands (and I might almost say ten thousand) colonies of bees, depends upon irrigation almost entirely for vegetation. As the river leaves the higher ground to the west it becomes the feeder of several large irrigating-ditches which follow the high ground, giving just enough fall to carry the water. Side ditches and runs distribute the water all over the ground, converting the almost barren desert into a rich garden.

Rocky Ford is becoming famous for its melons, both cantaloups and watermelons. This year's crop was estimated at about 250 carloads of each. It requires about twelve carloads of crates, besides many thousands of baskets, to put up the crop for shipment.

Quite a start has been made in fruit-growing, and this pursuit gives promise of developing to large proportions, and will become a source of large revenue to the district. I tasted some plums and peaches which were as fine as any I have ever seen. The climate of this section of Colorado is delightful, and much more beneficial to people with pulmonary ailments than the higher altitude further west. On the western horizon, a little to the north, Pike's Peak may be clearly seen, eighty-five miles distant, with its snow-clad summit 14,017 feet above sea-level. Thither I made my way after stopping a few hours in Pueblo, and making a call on A. R. Pierce, who furnishes a good many bee-keepers tributary to Pueblo with their supplies.

I stopped 24 hours in Manitou, and enjoyed to the full this brief stay amid its natural wonders. One who has never seen the mountains can form no idea, from description, of their sublime and stately grandeur. After partaking freely of the water from the soda springs for which Manitou is famous, I proceeded at once to visit the many "points of interest." Beautiful streams of clear water from the mountains, tossing down the canyons over the rocks, make music delightful to the ear, and add to the charm of the wonderful works of God seen on every hand. One is well repaid for a visit to the Cave of the Winds, or the grand caverns. Temple Drive and the Ute Pass are full of interest. The Garden of the Gods, with its cathedral spires of red rock, balanced rock, and other rocky formations, is worthy of a visit.

The most thrilling experience is a trip to the summit of Pike's Peak. This we made on what is called the cog railroad. This road is about 9 miles in length, and in that distance rises to an altitude of over 1½ miles as it winds up the rocky mountain-side. There are various ways of making the ascent. Some walk up, while others ride the little mountain burros. There is also a carriage-drive of over thirty miles, reaching to the summit. All of these take more time; and as my time was limited I chose the quickest route. Unfortunately it was a cloudy day, and the view from the summit was thereby much obscured. It was a magnificent view, nevertheless. To get a bird's-eye view of the country for hundreds of miles in every direction is an experience rarely enjoyed. The Cripple Creek gold-mines could be distinctly seen to the southwest, only about thirty miles away on an airline. There is a U. S. observatory on the summit, and the thermometer stood at 38 degrees when we were up there about noon. The train on the cog road makes two regular trips to the summit each day; and the *Pike's Peak News*, containing the names and addresses of all on board, is printed at the half-way house while we are up the peak, and sold to the passengers on the return trip.

My next stop was in Denver, where I spent two days meeting face to face those whom I had long known through correspondence and in a business way. I found that the L. A. Watkins Mdse. Co., who had succeeded Barteldes & Co. in handling our supplies, had done a fairly good business considering the conditions which existed last season. Frank Rauchfuss, secretary of the Denver Bee-keepers' Association, and manager of the bee-supply department in Watkins' warehouses I found to be a very pleasant and engaging young man of considerable experience as a bee-keeper. In company with him I visited Mr. W. L. Porter, who has some 900 colonies of bees in various apiaries near Denver. Mr. Porter produces both comb and extracted honey, the larger part, I believe, being extracted. He has a local market for all he secures, much of it put up in glass for retailing. I was agreeably surprised to find in the number of places where I stopped throughout the West, so good a home market for choice honey at very fair prices.

Mr. Porter has been carefully testing hives of 8 and 10 L. frame capacity, and comparing them. He at one time seemed to be in favor of the 10-frame size; but this year his preference is for the 8-frame. His honey is gathered chiefly from alfalfa, and is beautifully heavy, and light-colored. When one works up a trade in such honey, and is always careful what he puts up, to see that it is only first class, he may be sure of a permanent and growing demand, and at good prices.

I spent a number of pleasant hours with J. C. Frisbee, who, in company with his father, R. K. Frisbee, is engaged in putting up honey in glass jars and selling to the retail trade both comb and extracted honey. Their honey seems to be lighter in body, and to remain liquid much longer, than most alfalfa honey which I have seen, judging from the samples which I examined.

Many bees in the vicinity of Denver were afflicted last year with a peculiar malady which wasted away some apiaries entire; and some whose bees were not entirely destroyed were so discouraged by the experience that they sold out at a great sacrifice. This disease was mentioned by R. C. Aiken in an article on p. 479. I found, when I reached Omaha, Neb., and stopped there with R. M. Lewis, one of the principal bee-keepers of that city, that the bees there this year seem to be affected in the same way as those were last year around Denver. The disease seemed to affect the bees in much the same way as paralysis, and yet it seemed to be more fatal, strong colonies wasting away in a very short time. It was confined to a limited area about Denver last year, and this year in Omaha the bees affected are mostly within a radius of five miles. It has puzzled the bee-keepers, and is puzzling them to this day to know the cause. There are large lead and silver smelting-works in both territories affected, and some have assigned the cause to the poisonous gases from the smelting-works. But if that were the cause, why should it not operate every year? It is surely something that should be thoroughly investigated, for it is a source of very great loss to the bee-keepers subject to its ravages.

Denver is a very fine city, beautifully located in sight of the mountains with their summits of perpetual snow. One peculiarity of Denver which stands out in marked contrast to any other town or city I have visited is the fact that all its buildings, including the dwelling-houses clear out to the suburbs, are either brick or stone. No wooden structures are in sight anywhere. This gives the city a solid, substantial look. Wooden building-material has been expensive because it must all be imported, while brick and stone are plentiful; besides, a city ordinance is no doubt the chief cause of the absence of wooden buildings.

On my trip through Iowa I made E. Kretchmer a short call, and found that he, like the rest of the bee-supply manufacturers, had had a good trade the past season. I also spent a day in Des Moines and another in Chicago; but I shall have to defer till the next issue the account thereof.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

SUGAR SYRUP FOR BEES — HOW MADE.

Question.—Will you please tell us in the next issue of GLEANINGS how to make sugar syrup for winter stores for bees? I think you have given your recipe for syrup for winter feeding in some of the bee-papers before, but I can not turn to it just now. The season did not turn out as well as we were promised at first, and hence may of us will have to feed.

Answer.—Years ago we were told of many plans to make a feed of sugar that would answer for winter stores for the bees; but upon using most of the plans I found them to be failures along certain lines, the one most common being that the syrup would crystallize in the feeders and in the cells after being fed. Not being satisfied I went to experimenting in different ways; and while studying over this matter it occurred to me that, years before, during some experiments made to prevent honey from granulating, I had used sugar in one of these experiments, which syrup had accomplished the desired end, that of keeping the honey liquid when cold weather came. I said to myself that, if sugar syrup would keep honey from granulating, why would not honey keep sugar syrup from crystallizing? So the next batch of syrup was made as follows:

Fifteen pounds of water was weighed out and put into a tin vessel of suitable size. This vessel was then put over the fire till the water was brought to a boil, when 30 pounds of granulated sugar was poured in, stirring the same briskly while putting in, so that it would not settle and burn, as such sugar is sometimes liable to do if not stirred. The stirring was kept up till the sugar was partially dissolved, when it was left over the fire till it boiled again, when it was skimmed if impurities arose. It was then taken from the fire, when 5 pounds of good thick honey was poured in and stirred for a moment or two, so that the whole should be mixed thoroughly. This honey proved to be just what was needed, for syrup thus made remained liquid day after day, when not fed to the bees immediately, although with this formula the syrup was nearly, if not quite, as thick as the best honey. And I found that, after keeping it for several months by way of experiment, it proved as good as ever, not crystallizing or souring at all. Thus I had a feed that was easily made, and that would remain good whether in the hive or out; and after years have passed I use the same whenever the season has been so poor that I am obliged to feed in the fall.

The honey first used was extracted basswood honey; but of late years I have used that which has accumulated from the wax-extractor, no matter how badly mixed or of what color. I find that honey coming from the solar wax-extractor, by way of a little honey being in the bits of comb and wax placed there for melting, is always the nicest kind for any manner of feeding, no matter what the color may be, for the heat of the sun so ripens and thickens it that it is always prime for winter stores. If no honey can otherwise be had, that from partly filled sections will answer.

PREVENTING SWARMS IN AN OUT-APIARY.

Question.—If you were going to run an out-apiary for comb honey, how would you manage to prevent swarming?

Answer.—Well, as I have an out-apiary that is run for comb honey, perhaps I can answer this by telling what I do at that out-apiary each year. If I wish any increase I proceed as follows: Placing a hive all rigged with frames filled with foundation or empty combs, on the stand of one of the populous colonies which I think may be getting ready to swarm, I next set the sections from the old hive on the new, when I proceed to shake all of the bees off their combs and out of the hive, letting them run into the hive I set on their former stand. I now place the combs of brood back in the hive again and carry the whole to the stand of another populous colony, setting this last colony on a new stand from 10 to 100 feet distant. The sections are now put on the hive of brood, into which the bees returning from the field are now pouring. When they find that this is not their old home they are somewhat homesick; and if their old home is nearer than ten feet, many of these bees will find it, and, setting up the joyous hum of "home is found!" will call most of the bees away from the brood, which is not a desirable thing; hence I place the removed hive 25 feet or more away if it is possible to do so. I generally carry along with me some nearly mature queen-cells and give this made colony one of these in a queen-cell protector. This protector keeps the bees from destroying the cell till they realize their queenless condition, which happens a little before the cell hatches, so that, when the queen emerges, she is kindly received, and in due time becomes the head of the colony. In this way one new colony is made from two old ones; all desire for swarming is broken up, unless the season of surplus honey is long drawn out, while all three are in the best possible condition to store surplus, after a week or so has elapsed. If I wish no increase I usually cage the queen just before the bees think of swarming, leaving her caged for ten days, when the hive is opened, the bees shaken from every frame, so as not to miss any queen-cells, when all such cells are cut off, which makes the colony hopelessly queenless, except for the queen in the cage. If this queen is a good one I use her; if not, I give them a young one brought with me from my queen-rearing yard, or obtained elsewhere. But, no matter what queen is used, I proceed as follows: After removing the stopper from the cage containing the queen I wish the colony to have I insert another, this latter one having been prepared beforehand by boring a ⅜ hole through it. Into this hole is stuffed all the candy (such as is used in shipping queens) that it will hold, and the hole should not be less than one inch long. Having the queen and cage thus fixed, the cage is placed in some frame having a little vacant space free from comb, near the bottom; or if none such is found, I make a place large enough, when the hive is closed. To eat through this candy takes about five days, or the colony is without a laying queen for fifteen days, which time I find amply sufficient to stop all desire to swarm. While no eggs are being laid for the fifteen days, still the colony has a queen all the time, and, so far as I can see, work goes on in the sections nearly or quite as well as if the queen were out at liberty.

Heads of Grain from Different Fields

WHY SO MUCH WHITE CLOVER THIS SEASON? PAPER IN FOUNDATION; SOWING SWEET CLOVER, AND WHEN.

In Stray Straws, page 549, you speak of the wonderful growth of white clover this year, and as to the cause. I think it is accounted for by the root growth during the dry seasons when the clover scarcely appeared above ground, but was gaining in strength under ground from its long rest.

You did well to conclude to retain the paper in the packing of foundation.

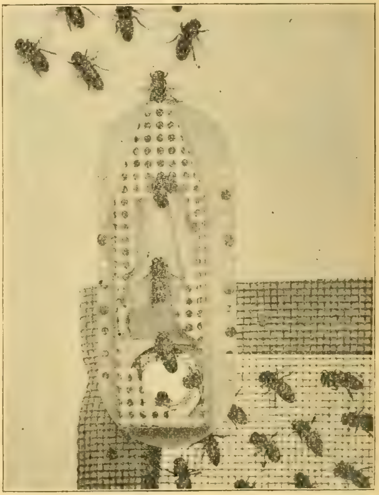
If Dr. C. C. Miller will lay the material for sections on the grass under a good large apple-tree he will not need to use any water in the grooves, and the sections will be much nicer in folding.

In regard to the sowing of sweet clover, as per inquiry on page 573, you can safely sow in spring as early as the ground will work well, say in March if possible. The ground should be well plowed and harrowed before the seed is sown, and once harrowed after sowing. Then the ground should be well firmed, as Peter Henderson would say, if living. I find it a good plan to take about four or more horses, and hitch them abreast and drive them back and forth over the ground until it is packed solid. If driven in straight lines the foot-marks of the horses will cause the clover to come up in rows, and will insure a good crop. This way of putting in clover of the kind mentioned has proven the best in the dry lands of Kansas; and, if the ground is dry, I think it will be a great help anywhere.

Cuba, Kan., Aug. 11. W. H. EAGERTY.

THE OPERATION OF THE HONEY-HOUSE PORTER BEE-ESCAPE.

We inclose herewith a proof of that better engraving of the honey-house escape that we have spoken of several times. The original photo of this is, in our opinion, the most difficult thing ever accomplished in the line of photographing live bees. If you question it, we should like to have you try your hand at improving it. R. & E. C. PORTER.



Lewistown, Ill., April 24.

THAT NEW BEE-DISEASE; HOW THE BEES "EVAPORATED" IN ANOTHER CASE.

I see that you would like to hear from parties in regard to the new bee-disease. Bees were in fine condition here the first of July. We never had a better prospect. Hives were boiling over with bees. Some had commenced in the supers. I examined them again about the 10th or 12th of July. Now, you no doubt have examined a colony as soon as they have cast a rousing swarm. That is just as near as I can tell you how things looked the 10th and

12th of July last. Very few dead bees were in front of the hives. The weather was very warm about that time, or some or most of the brood might have become chilled, for there were not enough bees left to cover the combs. Queens, larvæ, and brood seemed to be perfectly healthy.

Bees in a circle of two miles seem to be affected, some more and some less.

At present writing bees are still reduced in numbers. Out of 50 stands there is not one pound of surplus honey in the yard.

On page 555 Mr. Whitcomb tries to make us believe that too much cold water is the cause of all our troubles. Now, did you ever hear of such a thing as pure water hurting bees in the month of July? He says, further on, that the water from the mountains in Colorado is cold, and that the bees drank, and were chilled. Now, it is facts that we want — no guesswork about it.

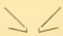
There is something wrong with the bees here now; that is one fact. I am not going to tell you what is the matter. I am like Dr. Miller—I "don't know." JAS. RAE.

Petersburg, Neb., Aug. 12.

[I talked with Mr. Whitcomb in regard to this very matter, at Buffalo. He stated that the water coming from the mountains, as it does, is very cold, and his experience has shown that ice-cold water is very injurious to bees. I do not know that I am competent to speak for him on this question, and therefore will ask him to write further as he may see fit.—ED.]

OBJECTIONS TO SOLDERING FRUIT-CANS FOR HONEY PURPOSES.

I have been reading Mr. Aikin's articles and your comments on pages 407–409, and 443, '4, in regard to honey-packages. It seems to me the fruit-can idea will be the cheapest; but the soldering of the top strikes me as inconvenient, both for the producer and the consumer. Fruit is generally used up at once after being opened; but honey will in most cases last for some time, and consequently the can will have to be tied up in some way to keep out impurities. This is impractical.

The grocers here sell an article called "butter oil," put up in quart fruit-cans. These cans have a small tube soldered on the top, through which this oil can be emptied. The tube on top is about ½ inch high and 1¼ to 1½ inches in diameter. It has a cork about ⅜ inch thick, and above the cork the tube is filled with what seems to me to be plaster Paris. From 12 to 24 cans are in a box that is just high enough to hold can and tube on top. If the hole in the top of the can is punched *outward*,  and the tube soldered around this beard, then the can may be perfectly drained of its contents. Besides the tube on top of the can there is a wire ring, by which the can may be carried. It seems to me a can of this description ought not to be much higher in price than the common fruit-can, and may be of some use till something better makes its appearance. At any rate, I believe it will not hurt, and may be of some benefit if you consider this kind of can before you go into manufacturing any kind. H. RAISCH.

Vineland, N. J., June 19.

[The difficulty of soldering up cans is not as great as you think, friend R. The very cheap soldering-kits now on the market, with directions accompanying them, make the operation of soldering the top on to the can a comparatively simple one.

The idea of using a tin neck on a can, with a cork, is very good; but the objection to any such thing as that is that it sticks up above the top of the can, and it is not practicable to tier one layer of such cans on top of another in one box. Cans that are soldered, however, are flat on top and bottom, and can be very easily packed in boxes, with little or no danger of leakage.—ED.]

POOR SEASON.

Noting the large crops of honey all over the land, I can say that we are not in it. Out of 35 colonies, spring count, I had 8 new swarms, and 5 starved to death at this date. I took from one to ten sections from eleven hives, and that is all dark and bitter. I have not opened the 1000 sections sent me last spring. Honey-flow ends here June 1st. No sale for the little I have on hand. As I must feed, the little will come in handy. J. H. ALLEN.

Box Elder, Va., Aug. 5.

BEES CLUSTERING OUT; TILTING UP THE HIVE-COVER.

I see from a note in GLEANINGS that you are somewhat troubled about your working bees clustering on the outside of the hives in very warm or hot weather. Now, for your benefit, and it may be for other bee-keepers', I will state that I solved this question several years ago here in the South, and I see no reason why my remedy will not work equally well in the North. You could visit my apiary the hottest days that we ever have here (and many of my 200 colonies stand in the sun), and you could at any time find but few bees outside.

I work for extracted honey, and use the ten-frame standard Dovetailed hive, two stories high. If at any time bees begin to cluster outside I know the cause is heat and want of ventilation. I raise the rear end of the hive-cover one inch or less, according to the intensity of the heat, with a small block or a wedge-shaped stick. This will start a current of air through the whole hive, and the bees will soon proceed to business.

J. W. WINDER.

New Orleans, La., Aug. 11.

[The tilting-up of the hive-cover is quite an old idea. Sometimes it works and sometimes it does not—at least that has been my experience. But, friend Winder, don't you think that the tilting-up of the cover, while it may cause the bees to quit clustering out, may be letting too much heat escape? The super should be very warm—the warmest part of the hive. The method I advocated for making the bees go into the hive does not call for cooling air-currents through the supers.—Ed.]

HOW TO MAKE YOUR OWN BEE-FEEDER.

I have kept bees for over fifteen years, and have always made my own bee-feeders—first wooden boxes and lately a kind of pepper-box feeder that does not cost me much, and will answer the purpose better than any that I have before seen or seen described. No doubt many a bee-keeper who has old fruit-cans or the like lying around would like to know of some good use he could put them to. To such I will describe my method of converting them into bee-feeders.

Fig 1

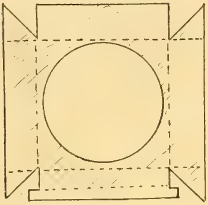


Fig 3

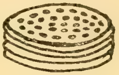


Fig 2

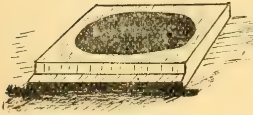
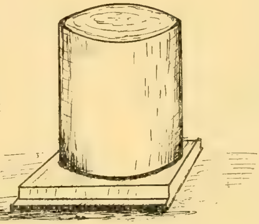


Fig 4



First take a quart or 3-lb. can, such as tomatoes or canned squash is put up in, and cut out one end, if it is not already out, and solder on to this end a screw top pricked full of holes like Fig. 3. You will find the screw top that you will want, mentioned in Root's bee-keepers' supplies, page 24. Get the 4-inch cap.

Fig. 4 is a feeder completed. After the screw top is soldered on to the end of the can, Fig. 4, it is inverted and pushed through the hole of a box or base, Fig. 2 (which is made for the purpose), far enough so the screw top will be on the under side of the box, the remainder of the can being above, as at Fig. 4. This box is about one inch high, without bottom, and is made in this way:

Take a sheet of tin a little over 6 inches square, and cut into it about one inch, and clip part of the corners out as shown in Fig. 1, and then the sides are bent over where the dotted lines appear, which forms the box. You will see some dotted lines on the lower side, which should be bent out where these dots are, and the ends of this part bent down so as to form a lip that will slide into the entrance of the hive. This projection is shown at Figs. 2 and 4. I use these, either as entrance feeders by putting the projection into the entrance so no robber-bees can molest the feed, or it can be placed on the frames inside of the hive. As there is no bottom to the base I can fill the can with syrup, screw the cap on, then invert it and place it where wanted, giving the bees access to the perforations, and it will work on the atmospheric principle, so that the feed will run out no faster than the bees can take it. It will hold one quart and half a pint. I have in use larger ones that hold a gallon, made on the same principle, or nearly the same, out of the gallon cans that are advertised on page 24 in your catalog. I make the can tight so no air can get in; and, after making an opening, and soldering a screw top (the screw top can be placed on the end or side of the can over the opening), I solder a strip of tin one inch wide around on the under side of the can, so as to raise it up and have it answer the same purpose that the base does to the other. I make the projection by soldering on a narrow strip of tin against an opening made for the bees to get under on the under side of the tin rim.

J. L. Hyde.

Pomfret Landing, Ct., May 14.

LANGSTROTH MONUMENT; ANTS A NUISANCE IN KANSAS.

Inclosed please find amount for the Langstroth monument fund. I should like to say to you that the monument should be made of stones that would be low and heavy rather than slim and tall, for the reason that they should last for all time, as it were. I should like it if the upper stone of the monument could be made in the shape of a bee-hive, say like the chaff hive put up by the A. I. Root Co.

In looking over the A B C of Bee Culture I find in regard to ants that they will do no damage; and in proof of the assertion we read they did not trouble the hives containing old honey. Now, old honey is not the nectar from the flowers that new and fresh honey is, as I understand it. The ants out here get up a raid on a colony, and, like Grant in the Wilderness, they get all the help they can. The raid is made in the night time, and the morning sees all the bushwhackers at home again. I tell you it will not always do to let them have the field to themselves. I use a crusher made like a man's slipper, but made of wood, with the bottom shaped like an old log canoe, or dugout. Attached to the wooden foot is a long handle. I run the crusher sidewise over the ground, and crush the ants quite fast. I find that after a rain is the best time to crush the ants. I do not get rid of them all, but I keep the numbers down so that the bees can master them. The little black ants are the worst.

COMB-BUILDING AND WING SOUND.

You will find in the A B C of Bee Culture, page 177, fortieth line, "As nearly as I can discover, they moisten the thin ribbons of wax with some sort of fluid," etc. Don't they use the acid from the sac wherein they carry the poison, to help them work the wax? and is not that the cause of their jumping about so, and letting the comb stand in a partly finished state until the poison becomes diffused in the atmosphere, and they can go on with the work again. On page 230, 16th line, you say again that "the sound is produced by the wings." I think it is produced by the air-pipes—the ones used to inflate the air-bags, and which all bees use to fill themselves with before taking flight. These things are of little consequence; and if I were writing for publication I would not mention them; but I wish you to give them your attention and make of them what you can.
WM. H. EAGERTY.

Cuba, Kan., Aug. 20.

[You are perhaps right in both of your suggestions. I would refer them to Prof. Bruner, of the Nebraska State University, at Lincoln, Neb.—ED.]

WINTERING IN THE DANZENBAKER HIVE.

The question was asked at the bee-keepers' convention at Buffalo, if my hive would winter bees as safely as the Langstroth, with deeper brood-frames, which measures 10 inches from top of hive bottom to cover. My hive has a deeper space, ⅞ inch, under the frames, with ½-inch top-bars in brood-frames, making 8½ in. net from hive-bottom to hive-covers, only 1½ in. less than the L. hive, and 6¾ in. depth of comb surface, or *only* 1¼ in. less than the 8-frame Dove. hive, which has 1088 sq. in. of comb surface, while the ten Danzenbaker frames have 1080 inches of comb surface; and being nearer square, and more compact, with thick closed-end frames and closed air-spaces forming 2¼ inches protection at the ends of combs, must have the advantage under like conditions as a safe wintering hive.

In GLEANINGS, March 1, 1890, p. 168, appears a report of the Wisconsin convention, by A. I. Root. In this report, as an allusion to the B. Taylor shallow hive and its safe wintering, Mr. Root says of it:

> Mr. B. Taylor, of Forestville, Minn., contributed a good deal to the meeting. He brought a model of his bee-hive, which he has had in use 25 years or more. He calls it the "Handy" hive. Fully 25 years ago he formed the idea of having the surplus apartment exactly like the brood-apartment—that is, so far as size and shape were concerned. Of course, the brood-combs would have to be made shallow in order that they might answer tolerably for holding the frames small enough for surplus. Accordingly he makes all stories of his hive so as to hold a frame only 4½ inches deep. This depth was decided upon from the fact that fence-boards 6 inches wide were always to be had, of pretty fair lumber, and at a comparatively low price. The hive is made with beveled joints, to keep out wind and rain, and to keep them in place, very much as I designed the Simplicity hive originally; but his hives are (as mentioned) only about half the depth of the regular Simplicities. As he makes the hive square instead of oblong, the shallow frames contain from three to four pounds of comb honey. He has a special mode of manipulating them so as to get large yields of surplus comb honey, and, also, so as to manage artificial swarming in a very expeditious and certain manner. He winters in the cellar, and prefers only *one story* for wintering, even with combs only 4½ inches deep.

I think it may be said, that, if frames 1½ in. deep winter bees safely, one 7½ will; and when the inside dimensions differ only 1½ in., there can be no difference under like conditions; but as my 10-frame hive is more compact, and nearer square, than the 8-frame L. hives, with both ends better protected by the space of 2½ in. from outside to edges of the combs, it must be safer as a winter hive, as many reports have shown. See my book, "Facts about Bees," p. 61.
F. DANZENBAKER.

REPORTS ENCOURAGING

Bees have done well this season. I have extracted as much as 200 lbs. per hive.
Lisbon, Tex., Aug. 14. J. D. GIVENS.

I have 120 lbs. of comb honey from one hive that did not swarm. How is that for a poor locality? R. STEHLE.
Marietta, O., Aug. 11.

I have some hives from which I took off 98 lbs. of honey, June 28. I think they will have 70 lbs. more. O. F. WITTE.
North Amherst, O., July 5.

This closes one of the best seasons for honey that this section has ever had. Almost every bee-keeper's bees have done well. My stock did excellently. DR. S. H. HURST.
Laconia, Ind., Aug. 12.

My bees did well this year. I have taken up to date 4500 lbs. from 100 hives; shall get 6000 or 7000 lbs. this season. I am going to sow one bushel of horsemint seed. I had some sown this year. I think it paid.
Elmont, Tex., July 30. J. F. TEEL.

LARGEST CROP EVER HAD.

I have the largest crop of honey I ever had—white clover. I had one colony that made 90 lbs. in sections, as white as snow. If it ever clears off I shall have another crop, from goldenrod. I have about 100 basswood-trees but they didn't have any blossoms on this year. MILLARD MAPES.
Monroe, N. Y., Aug. 5.

ONE COLONY IN THE SPRING, INCREASED TO 8; $19.00 WORTH OF HONEY; AND "MORE TO FOLLOW."

I have had success beyond expectation. I started last year with one stand of bees; have increased from same, and have to-day 8 stands; received a big spring crop, and am assured of a good fall crop, as my supers are about full, and some are being capped. I sold honey from my spring crop, amounting to $19.00; and still had plenty for my family. Now I have the fall crop. I never had any experience before in bee-keeping.
M. M. ANDERSON.
St. Louis, Mo., Sept. 7.

By Er Root
Editorial

STIRRING honey very much unnecessarily is apt to make honey candy prematurely, said J. F. McIntyre, of Fillmore, Cal., on the floor of the Buffalo convention.

E. A. WANDER, of Hartford, Conn., at Buffalo, gave the result of an experiment of his with 8, 10, and 13 frame hives. As I remember it, his 8-frame colonies gave him an average surplus of 37 lbs. of honey; his 10-frame colonies 56 lbs., and his 13-frame colonies 113 lbs. Perhaps in another locality the result might be very different.

MR. E. T. ABBOTT, of St. Joseph, Mo., at the Buffalo meeting, said that, in his opinion, it was a wrong notion that the small bee-keeper and the farmer and the amateur bee-keeper were the enemies of the specialist honey-producer. "Why," said he, "they are our best friends." The product that they put on the market could not compare with what he could produce and sell, and he thought they actually helped him to make sales at a much higher price for his honey.

A NEW IDEA.

IN a paper that R. C. Aikin sent to the Buffalo convention, he put forth the rather startling idea that, in his opinion, it might be more profitable to take extracting-comb, cut out the honey and all, "sqush" the honey out of the combs by passing them between rollers, and then melting the wax. His point was that extracted honey was going down in price, and wax going up; that wax and honey, sold separately, would bring more money than if the combs were extracted in the ordinary way, and preserved. This met a protest on every side, and it was mainly to the effect that wax in combs is much more valuable to the bee-keeper than the same wax in cakes.

A SAD AFFLICTION AT THE HOME OF W. Z. HUTCHINSON.

WHEN we saw our friend W. Z. H. at the Buffalo convention, looking brighter and happier than usual, little did any of us imagine the sad blow that he was so soon to be called upon to endure. We have been aware for some time past that both his good wife and daughter Ivy have been suffering from a peculiar mental affliction; and we knew, too, they had been sent to a sort of asylum for treatment. On the Saturday afternoon after the convention, Aug. 28, the mother, it seems, had a sudden stroke of her old trouble; and before friends could interfere she had chloroformed little Fern, only five years old, and almost succeeded in taking the life of the afflicted older daughter. Of course, she is now in charge again of the asylum, where she is supposed to be in safe keeping. This is one of those very sad affairs for which we can hardly call anybody to blame. Mrs. Hutchinson was supposed to be much better, and had been at home some time, if I am correctly informed. May God help our afflicted brother through this his great and terrible ordeal.—A. I. R.]

DEATH OF DR. JESSE OREN.

ABOUT the time I first turned my attention to apiculture (August, 1865), Dr. Jesse Oren also became interested in introducing the Italian bees in his locality, Laporte City, Ia. He soon became, with myself, a frequent contributor to the *American Bee Journal*, then newly started, and for many years his name was almost a household word among bee-keepers. Some of you will remember that, during my visit to Florida, I was most pleasantly entertained at his residence in Daytona. When I offered some apology for going to a private home when I was obliged to be particular, and, as it might seem to some, fastidious, about my diet, he and the family hastened to inform me that it would make them no extra trouble at all, for the doctor had been obliged for years to abstain from every thing containing the least particle of starch or sugar. His trouble was diabetes. When I asked him in regard to the matter, he told me he should live but a short time unless he were thus particular in regard to his diet. Of course, they gave him all the variety they could without overstepping the line that through years of suffering had been mapped out by himself and by the advice of other physicians. He was a devoted Christian, and was ready to go when the Father called, for he had been many long years living a life of "thy will, not mine, be done." His death occurred Aug. 26, in the 73d year of his age, in Laporte City, Ia. From a local paper we quote:

> Examination shows death to have been caused by suppuration of the gall-bladder, due to the presence of a large gall-stone, and an abscess of the upper portion of the left lung, the result of pneumonia.

Dr. Oren was a man of considerable wealth, and I think he told me in conversation that the greater part of it had come either directly or indirectly from bee culture. He produced large crops of honey year after year for so long a period without failure that he has been quoted largely as an example of what persistent care and attention may do in our industry. For many years past, on account of his health, he has been passing his winters in his beautiful home at Daytona, Fla.—A. I. R.

THE EFFECT OF PREMATURE PREDICTIONS OF THE HONEY-FLOW.

MR. P. H. ELWOOD, at the Buffalo convention, expressed regret that the editors of the bee-journals had predicted a remarkable honey year when subsequent reports seemed to show that the season was not as good as had been expected. The effect of this advance talk he thought had been to lower unnecessarily the price of honey.

There is truth in what he said, and I am willing, so far as GLEANINGS is concerned, to plead guilty—at least to some extent. From Mr. Elwood's standpoint, or, in fact, from the standpoint of any bee-keeper in York State, the season had not been as good as the last; but in other States I think it has been very much better, if we except also the basswood-growing regions of Wisconsin, Iowa, and Minnesota. All through York State I found that clover had done very much better than it did last year; but the entire failure of basswood very materially dropped the general average. It is easy to see that those States that have generally secured good crops from basswood, owing to the absolute failure from that source, have not had, comparatively speaking, as good a crop as last year. But the great majority of locations throughout our country have given far better averages, as basswood does not grow in those places.

This suggests a question: Suppose there could be no question about it of honey-flow being much better than for years past—would it be wise to publish the fact? or would it be better to let the situation be known? I must confess that, so far as we are concerned, our predictions for the future will be conservative rather than otherwise.

SHIPPING COMB HONEY.

A GOOD deal of discussion took place at the Buffalo meeting regarding the best methods for shipping comb honey by freight. Several took the ground that it was bad policy to put cases of comb honey in a large protecting-crate; that the honey was more liable to be broken in such crates than when piled loosely in a car on straw. Others insisted just as strenuously that they never had success in shipping honey till they used these protecting-crates. Among those who advocated putting the cases in a car without the crate were Capt. J. E. Hetherington, Dr. C. C. Miller, and quite a number of others. These latter, *i. e.*, those who advocated the non-use of the crates, very often ship in *large* lots and in carloads; when the cases are piled up solidly in a car (combs parallel to the rails) there is not very much liability of the honey being broken. On the other hand, when honey is shipped in *small* lots, say in five or ten cases, it seems to go better in a crate, especially if it is transferred. But Mr. S. A. Niver, of Groton, N. Y., made the point that those heavy crates holding, say, ten or twelve cases, are pretty sure to be handled in York State on two-wheeled trucks. The crates were put on them the long way; and as they are trundled from one car to another the combs are jolted when held on at an angle of 45 degrees, and the wrong way at that, and this causes the breaking out when they used crates. It was hard for me to reconcile that statement in view of the fact that we had always had better success by using the crates than when we did not use them. When I went through York State I noticed that they used two-wheeled trucks where we in the central and western portion of the country use four-wheeled ones. On the latter, crates holding ten or twelve cases would be handled just as they should be—in a horizontal position. On two-wheeled trucks, these crates would be trundled and bumped over the plank platforms at an angle of 45 degrees, as explained.

THE BIG BUFFALO CONVENTION.

THE Buffalo convention, while perhaps not the largest in point of numbers (and I do not know but it might have been the largest also), was one of the best conventions I ever attended. It certainly was a most representative meeting. There were bee-keepers present from California and the West, from Cuba, from all over New England, from different parts of the South, from every portion of York State, and from all over Canada. There was that extensive bee-keeper from California, Mr. J. F. McIntyre, who has 600 colonies all in one apiary; and there was the editor of the *California Bee-keeper;* that distinguished bee-keeper, O. O. Poppleton, from Florida; E. Whitcomb, from Nebraska; Fred L. Craycraft, from Cuba. There was also present from New York, Mr. W. L. Coggshall, who runs 13 out-apiaries aggregating something like 1000 colonies; P. H. Elwood, having a similar number; Capt. J. E. Hetherington; and—well, I don't know how many more. Besides these bee-keepers with their great ranches, as we might say, of bees, there were a good many more who owned colonies aggregating anywhere from 300 to 500 in number. Then there were the professional men, and the bee-keepers having anywhere from 10 to 100 colonies.

The convention hall was pretty well filled most of the time; and, barring a little passage at arms at one of the sessions, every thing passed off very pleasantly.

One of the special features of this convention were some grand talks from Capt. J. E. Hetherington, said to be the most extensive bee-keeper in the world; J. F. McIntyre, of California; G. M. Doolittle, almost the uncrowned king of the convention;* Fred L. Craycraft, a bee-keeper who has achieved no small distinction in Cuba. And then there was plenty of good-natured sparring between Drs. Mason and Miller; Messrs. Abbott, of Missouri, and Doolittle, of New York; Hon. E. Whitcomb, of Nebraska, and others whose names do not come to mind just now. Wit and humor, intermingled with song, spiced the whole convention.

No small praise is due to Mr. O. L. Hershiser, of Buffalo, for the beautiful room he secured for us in one of those sky-scraping buildings, top floor, and the excellent entertainment, in view of the great crowds in the city on account of the G. A. R. encampment.

Unfortunately, the convention had no reporter. The one who had been secured disappointed us at the last; and supposing the report was being taken I took no notes; but I am just conceited enough to believe I brought home some ideas, and I hope to sprinkle them into our columns in the forthcoming issues, as time and opportunity may suggest.

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* Doolittle "brought down the house" a number of times by his happy speeches; and later on a strong effort was made to make him president, but he declined with thanks.

APIS DORSATA AT THE BUFFALO CONVENTION.

It will be remembered that the Ontario Co. Bee-keepers' Association, made up of bee-keepers of Ontario Co., N. Y., passed a resolution recommending the general government to secure the giant bees. This resolution, after being published, received some unfavorable comment, both in the *American Bee Journal* and in these columns. At the Lincoln convention a counter-resolution was passed, to the effect that the members of the N. A. B. K. A. did not approve of the idea of asking the government to send an expedition for the big bee of India. Shortly after I myself said a good deal against what I termed the "scheme," honestly believing that it would be better to use the money that the government might see fit to give in the interest of bee-keeping for experimental work rather than to pursue after a will-o'-the-wisp—a bee about which we know very very little.

On the second day of the Buffalo convention I could easily see that there was going to be a fight over the matter. The Ontario bee-keepers present at the Buffalo meeting, and a good many others of the York State bee-men, were anxious to secure the passage of a resolution from the United States Bee-keepers' Union favoring an attempt on the part of the government to bring *Apis dorsata* to our shores.

I had had some previous correspondence with some of the York State bee-keepers, prominent among whom was W. F, Marks, of Chapinville, N. Y. In one of his letters he said he would be glad to enlighten me in regard to the "dorsata scheme," as I had termed it; and that he hoped he might have the pleasure of talking with me on the matter at the Buffalo convention.

The result of the conversation, both with him and with others, showed that the government was willing to make some effort to get *Apis dorsata* to our country, but that it was *not willing* to give us money for experimental or any other purpose. Messrs. Marks, Ritchie, and others, in our private conference, could see no reason *why* we should oppose the idea when the government had plainly indicated its willingness to secure for us *Apis dorsata*, and when it had so positively declined to do any thing else. Why not ask the government to do what it felt inclined to do? The upshot of the whole matter was, that a compromise resolution was passed to the effect that the U. S. B. K. U. assembled at Buffalo favored *any* attempt to bring the big bees here.

Just what course the government will take remains to be seen. In the meantime The A. I. Root Co. will go on with its plan to get the dorsata. If our scheme fails, then we may be very glad to get government assistance; and it is very possible that our man and the government appointee may together be able to accomplish what either one alone could not. Possibly the government could do no better than to select our man; if so, we shall gladly give him up.

In any case, it is not proposed to bring dorsata into a northern climate, but to take them to some point in the South, say Florida. Mr. O. O. Poppleton has signified his willingness, not only to take care of the bees, but to give them every attention.

WHAT I SAW IN YORK STATE; THOSE IMMENSE FIELDS OF BUCKWHEAT.

Just before this issue goes to press I managed to get home from my trip among the bee-keepers of the East, and just in time to get in a few editorials. I have not space in this issue to tell a tithe of the ideas that I gathered in York State and in Rhode Island, for *ideas* were just what I was after.

For the present I can only say this: That I visited some of the largest bee-keepers in the world, and witnessed their methods of management. Several told me I must see W. L. Coggshall and his lightning operators. Last year he took 78,000 pounds of honey, and this year 50,000. To see those men work, yanking the combs out of the hive, and again yanking the honey out of the combs, was a revelation to me. I'll tell you about it later.

Yes, I have been in locations where from one hilltop could be seen as many as 5000 acres of buckwheat-fields. I have been in counties where there were all the way from 2000 to 3000 colonies. I was in one location (Boomhower's) where bees had access, within a range of three miles, to 5000 acres of buckwheat-fields.

I have known before that New York was a wonderful honey State; but I believe I have had my eyes opened wider than ever before. Why, just think of it! single county conventions in York State being able to muster up 125 bee-keepers! I managed to take them all home in my Kodak, and I'll introduce them later. With the possible exception of California, York State has more bee-keepers and more colonies to the square mile (I was about to say to the square inch) than any other place on the globe; and I am not sure that even California should be excepted.

Now, lest any of you think it would be a good place to migrate to, I want to tell you now to stay where you are. Generally speaking, the whole of York State is overstocked with bees; and any "tenderfoot" who should go into that State thinking he might get a generous slice of some desirable territory not now occupied would be very much mistaken. Why, it seemed to me as if every farmer kept bees, and quite extensive apiaries too.

In order to cover as much territory as possible I used the bicycle, and both steam and electric cars; and even then I had to skip by many a bee-keeper I had hoped to visit. For instance, I had to pass by Mr. Egbert Alexander, of Delanson, N. Y., notwithstanding the fact that I actually passed through his place on the train; but for want of time I just *had* to go on. Well, I was told last year that this man, with his 900 colonies, secured *400 barrels* of extracted honey; but these barrels held only about 160 pounds each, I believe. But figure it up for yourself and even then you will find it gives an enormous crop in the aggregate—32 *tons*. And let me whisper in your ear that, so far as I could learn, the region round about Delanson is very much overstocked; and in saying this I am telling the exact truth. I should be doing a very great injustice to York State bee-keepers were I to paint the field in such glowing colors that it would produce another Klondike or Oklahoma rush of bee-keepers.

Well, I have secured photographs illustrating apiaries and various new-fangled ideas; and in future issues of GLEANINGS I propose to give in detail something of what I have outlined above.

F. DANZENBAKER.

We herewith present a half-tone portrait of Mr. F. Danzenbaker, of Washington, D. C., taken on his 60th birthday. Having never used tobacco in any form, nor suffered a day's illness since his eighth year, he is to-day as active as most men of forty. He inherits from his father and grandfather, who owned 300 colonies of bees in West Jersey, over 60 years ago, an all-absorbing interest in bees and apicultural pursuits. He says every day in the apiary is for him pleasant recreation, having combined bee-keeping and farming until, in his 50th year, he is satisfied to be known as a farmer bee-keeper.

Having spent many years experimenting to ascertain the best hives and methods for the production of comb honey he has brought out and patented some valuable improvements in hives and appliances. After using the Dovetailed (or lock-cornered) hive eight years himself, he brought a finished model to us and gave us the first order for Dovetailed hives made in our factory. Since then he has brought to our attention the D. case, named by us after him.

The little book, entitled "Facts about Bees," contains much very valuable information in regard to a variety of operations in caring for bees, invaluable to a beginner, and well worthy a careful reading by the veteran bee-keeper, even if he does not agree with Mr. D. in regard to the best system for producing comb honey. Indeed, it contains as much and as valuable matter as some books on bees we have seen published and sold for 25 and 50 cts.; yet this will be sent you for simply a 2-ct. stamp to pay postage.

Mr. Danzenbaker, who has been spending a few days in Medina since the Buffalo convention, would like very much to hear from all those who have tried his hive the past season. Write him at Washington, D. C., offering suggestions or criticisms as you may have any to offer, telling him how you have succeeded with the hives.

GRADING HONEY.

IT is really amusing to see the way different people interpret the same grading-rules. In order to secure uniformity of grade so far as possible, we have printed on a slip a copy of the grading-rules suggested on p. 566, Aug. 1st GLEANINGS, together with instructions for packing honey for shipment, one of which we send to each party to whom we make an offer for comb honey. The sample shipments which have come in, each graded (or represented to be graded) by those rules, are a study. The A No. 1 grade from one man will show up better than the fancy from another, and yet I have no doubt that both endeavored to grade to the rules to the best of their ability. It seems to be next to impossible to make a set of grading-rules that shall be sufficiently simple, and at the same time explicit enough to be so correctly understood that a mixed lot of honey would be graded practically the same by every bee-keeper who should undertake it. We feel as if we were no better off than we were without any rules at all, except, perhaps, that the honey is subdivided into classes, where before, many times, we received it all mixed together.

There is a great deal for bee-keepers to learn along the line of putting up their honey in the best possible shape for market. Those who are the most careful about grading are, as a rule, the most careful in their methods of producing honey; what they secure is all of a better average grade than that of their neighbor who is more careless and slipshod in his management. We have decided that, in order to know what grade we are buying, we must see the honey, or a sample crate of it, before we can be safe in filling orders by making direct shipments from the producer to the customer. There is just as much difference between customers as between producers in the matter of grading. As evidence, here is a case. A Michigan bee-keeper from whom we have bought honey several years sent a crate of honey to a customer in Illinois. On receiving it, he wrote as follows:

> The honey you shipped came here in splendid condition; and to say I was pleased with it would be putting it mildly. In fact, I never saw prettier honey. When I need some more I'll know where to send for it.
> FRED HASSMAN.
> East Alton, Ill., Aug. 18.

The same producer sent another shipment to another customer, and he was very much dissatisfied. J. T. C.

NOTES OF TRAVEL
BY A. I. ROOT.

DREER'S GARDENING UNDER GLASS.

Ever since I have been engaged in gardening — I might almost say ever since I have been engaged in business—I have had at different times a longing to see a whole acre—a whole square acre, if you choose — entirely covered with glass, so one could go about and feel that he had elbow room and still be protected from wintry blasts. This longing was for the first time gratified when I caught a view of Dreer's immense establishment.

The group of buildings form a square, or pretty nearly so. The shape of the roof is shown in the cut. Every thing is glass, up above the frost-proof wall, which is perhaps 3 feet high. The ventilators are along the ridge.

Cut No. 2 gives you a view of the interior. The gutters are supported by a U-shaped iron frame that looks like a doorway. See cut.

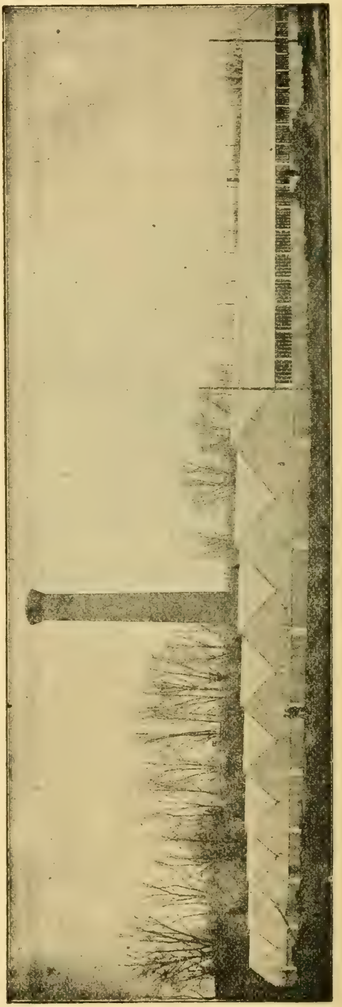
You will notice from the engraving that these U-shaped doorways are arranged so as to assist in supporting the beds. Said beds are all made of iron, and supported by iron posts. The corners of the beds are rounded, as you notice, for strength, beauty, and to avoid bumping against the sharp angle. The bottom of the beds is slate. In fact, there is nothing about this building to catch fire and burn up, and no insurance is carried on the plant. The framework is of metal pipes, as you will notice. These pipes are filled with water, and a hose can be attached at any convenient point, thus giving water in abundance without any special piping for it. The heating-apparatus is shown beneath the beds, and the capacity is sufficient to protect perfectly the expensive contents of one of these greenhouses. I said to our guide :

"My good friend, can you tell me in round numbers about what it costs to inclose a square acre as we see it done here?"

"Well, we have five houses just like this, each one inclosing an acre; and I believe they estimate the expense of each one at just about $25,000."

"Well, that is about what I expected it would be ; and, if I am not mistaken, the beautiful plants that have entirely filled and occupied every foot beneath this glass are worth almost as much more."

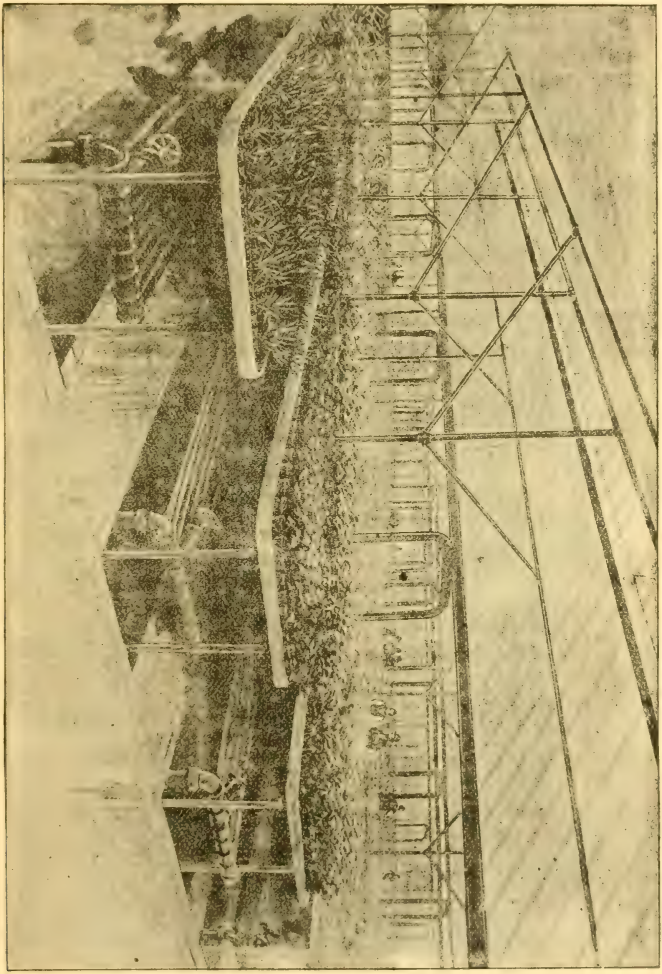
"Just about twice as much, Mr. Root. These rare and costly palms and other high-priced plants are worth from two to five dollars each."



A WHOLE SQUARE ACRE PROTECTED BY GLASS.

Dear friends, it is impossible for me to undertake to describe the beauty of this exotic garden under glass. The mechanical arrangements and construction of the building are perfect, and the plants were each and every one models of thrift and beauty. I did not before realize that there was such a structure or such an array of beautiful plants anywhere on the face of the earth. The sight of it gave me another of those thrills I have tried to describe. And this view impressed me the more because it indicated at a glance that man had actually triumphed over the constant effort of the elements to tear down and destroy. No wonder our good friend Dreer was able to write that little book that has proved so taking during the past year—"Vegetables Under Glass." Now, it is one thing to build such a structure, and it is another thing to get a man who will keep it running so as to pay expenses — high-pressure gardening indeed — and a high-pressure *man* or men to hold the whole institution *up* to the high-pressure point.

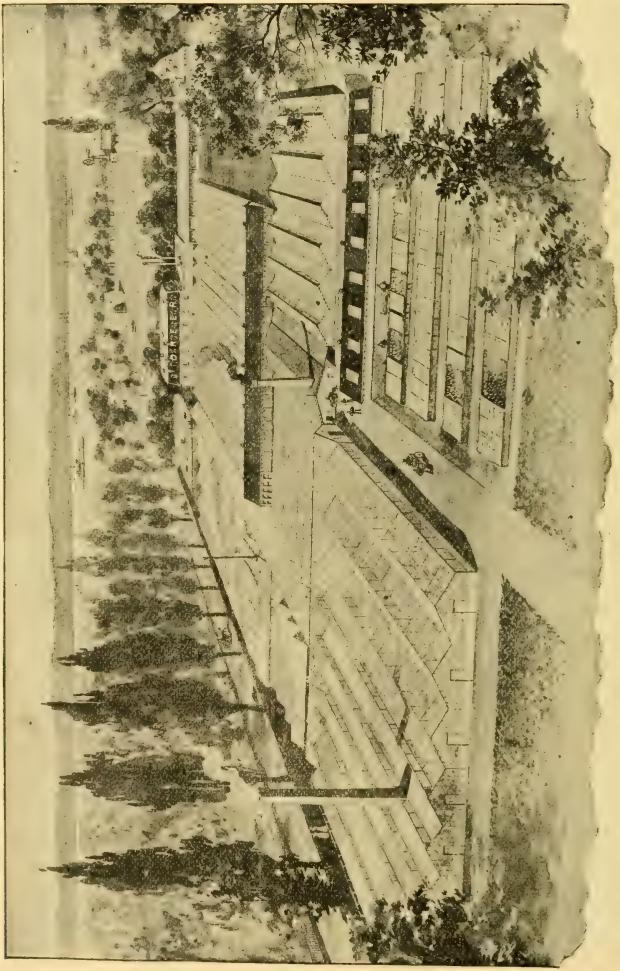
Now I want to give you a bird's-eye view of the whole group of buildings, five in number, as shown on next page.



INTERIOR VIEW OF THE GREENHOUSE COVERING A SOLID SQUARE ACRE.

The one acre I have been describing is in the foreground at the left hand, where you see the chimney rising above. My impression was that one chimney and one set of boilers warmed the whole five acres; but as I now look at the picture I think I was mistaken. The plant has been gradually built up, as we might expect; therefore there are several minor greenhouses that were built and in use before the other great structures covering an acre each.

You will notice at the right-hand front corner there is a group of cold-frames with sash over them. They have evidently planned these very much as I plan my quarter-acre under glass. The beds are of such convenient length that the sash can be piled up at each end without carrying them a very long distance. What do you suppose those neatly kept beds contain just in front of the greenhouse, on the lower margin of the picture? Why, they are rows of strawberries where they are growing potted plants. If I remember correctly, the first row was our old favorite, Marshall; then I saw Brandywine, and other names familiar, on the neatly printed labels.



GARDENING UNDER GLASS, BY THE ACRE.

Some of these labels actually came from The A. I. Root Co.

Near the upper right-hand corner was a sort of greenhouse covered with lath. It made me think of the pineapple plantations in Florida. This structure contained potted plants of the Norfolk Island pine. This pine attracted my attention both in California and in Florida. I have been told it is found nowhere else in the world except on that one island, and that it is quite difficult to grow them anywhere else outdoors. The minute my eye caught sight of several hundred of these magnificent little trees, tastily arranged in beds like a systematic garden, I uttered an exclamation of surprise.

"Why! will these trees actually grow in the open air in this climate?"

"Not quite in the open air, Mr. Root. You see we have them partially shaded by the slatted covering overhead. They will not endure a low temperature, neither can they stand the hot sun; but with this amount of shade we have discovered they do nicely, as you see."

Oh how I did want one of those beautiful plants! But it would be expensive to get it home, and then I am afraid it would never be cared for amid the rush of business round about the Home of the Honey-bees.

Oh, dear me! after going all the way to Philadelphia, and taking a whole week at that, I was admonished that, if I carried out my program, there was only about ten minutes left before train time. Our guide replied:

"Oh! but you *must* take a glimpse at the aquatic plants, if nothing more."

And then we went down hill a little piece where there used to be an ugly swamp or quagmire. Mr. Dreer had spaded out several square water-beds, and made walks between them on solid ground. Instead of a garden with raised beds, we had here a garden with sunken beds; and in these beds was every variety of water-plants, such as water-lilies—(so I should call them)—in full bloom, almost as large as a dinner-plate, and of almost all colors. Some of them had great green leaves floating on the surface of the water, as large as a small umbrella; and the *Victoria regia* had the edges of the leaf all turned up something like the edge of a jelly-tin, to keep the water from running over on top of the leaf; and this arrangement makes the leaf so buoyant that a young lady has safely stood on it without sinking.

I believe H. A. Dreer has the reputation of standing at the head of all growers of exotic plants in the United States; and in some respects I am inclined to think his glass structures are not excelled if equaled by those of any other man on the face of the earth.

MY PICKLE STORY.

Some time in the month of August I had been feeling that I must have a wheelride; so I arranged business for an absence of two days. But the Weather Bureau and barometer both said rain. In fact, it had rained a little—just enough to lay the dust; but it was cloudy, and the air cool, so I decided to start out and take the consequences. I got about 15 miles from home, and was enjoying myself hugely, singing, as I bowled along,

Praise God, from whom all blessings flow.

I changed my course a little to dodge the thunder-clouds; but it looked to me as if the thunder-clouds changed their course also. I was obliged to seek shelter once, then twice, and I began to meditate going back home. But the soil changed, and there was not very much mud. Then I came to a muddy streak, and became pretty nearly discouraged; but I got through it, and was congratulating myself that I was all right after all. Finally I came to a spot of very tenacious clay. The road had recently been worked clear over from one ditch to the other. There was not a chance to pick my way on either side; and the grass up by the fences was soaking wet, and nearly two feet high. The wheel would have to go in the road or not at all. I got about half way through the bad spot, and finally the mud began to pile up; and so much collected on the frame I could scarcely push it; and when I essayed to walk, my bicycle shoes went down almost over their tops. I could neither go backward nor forward; and, in fact, I was in a "pickle." And this is the first part of my pickle story.*

Some distance ahead a railroad crossed my road. I knew if I could reach that railway I could ride after a fashion between the rails. I managed to get out of this "Slough of Despond;" but by the time my wheel was cleaned off from that sticky clay, it was getting to be about supper-time; and the amount of strength I had expended in trying to force my way through and out of the mud made me about ready for supper, you may be sure. I got on along the railway track very nicely, and soon arrived at the little town of Smithville, Wayne Co., O. While I was eating my supper—that is, after my hunger was partly appeased—I noticed the people at the table were talking about pickles, and I was just thinking I might tell them something of one "pickle" that came in my experience that afternoon. Then they began discussing bushel boxes. Somebody said:

"Well, now, you may be pretty sure that Root's bushel box is all right. He is too careful a man to go ahead and make them by the carload unless he has them exactly right; and I tell you his box will stand law—you may be sure of that."

"I wonder how much business the Roots are doing this year, any way," said another. And then followed some other remarks that made me think I had better show my colors. Said I:

"Look here, friends; before you go any further perhaps I had better tell you that I am one of the Roots myself; and if I can help you in regard to the matter of the size of the bushel boxes, or any thing else, I am gladly at your service, especially since I have had such a nice supper."

Well, they were very glad to see me indeed; and when I told them I thought I had better stay over night they wanted me to go over and see their new pickle-factory. A great building has been erected. In fact, the whole thing was started since April. A great pickle combine in Cincinnati had volunteered to build a factory, equip it, and furnish a competent manager, providing the farmers round about Smithville would guarantee to grow 500 acres of pickles. The company agreed to pay said farmers 40 cts. a bushel for pickles not exceeding 3½ inches in length. All that were permitted to grow more than 3½ inches in length were to be sold for 12½ cts. a bushel.

Now, so far the contract was very pleasant; but before the company would go to work to

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*Constance accuses me of doing reckless things when off on my wheel—getting lost, and the like, in order that I may meet with spicy adventures. If she is right, I had found what I wanted this time, sure, for this adventure included spice, and a *pickle* besides.

put up the factory they demanded a donation of $12.00 spot cash for every acre put out to pickles; that is, the man who furnishes the pickles must pay the company $12.00 for each acre. The question naturally arose, "How many bushels of pickles can be grown on an acre?" Now, boys, we who have been in high-pressure gardening know something about it. If you have the ground just right, water just right, and *weather* just right, nobody really knows how many bushels of pickles an acre might produce. Six thousand dollars in cash is a good deal of money for farmers to scrape up and pay to the pickle combine. But I added:

"If you pay all the money that is required to build the factory and equip it, of course the institution belongs to the 300 or 400 farmers who furnish the money."

But somebody said very quickly, "Not so. The company will not go ahead and do a thing until we have raised the $6000. Of course, we do not have to pay any thing another year. After the building is up and in operation then we get 40 cts. a bushel for our pickles, without any further payment on our part. They won't go ahead and put up the works any other way."

Now, friends, this does not seem to me quite right. It savors too much of the swindle that the *Rural New-Yorker* people have called the "creamery sharks." But on the other hand it may be that even a great pickle company would not want to furnish the capital to put up buildings in an out-of-the-way country place like this unless the patrons did something toward it. You will have to decide for yourself in regard to the right and wrong of it.

The building is 210 feet long by 150 feet wide, covered principally with barn boards, leaving cracks as in an ordinary barn. It is not necessary to have the building frost-proof, for pickles can not freeze when in the brine — at least, that was my understanding of the matter. The building contains 84 great tanks sufficient to hold 1000 bushels each. The tanks stand directly on the ground. They rise perhaps 3 feet through the upper floor. The pickles are taken in at the upper floor and dumped into the tanks. The farmers bring them in in bushel boxes; and here the discussion came in as to how large a box should be to hold just a bushel. I believe they adopted our bushel box. Pickles were coming in all along the evening, that had been picked during the day. Eight of these great tanks were already full; in fact, I saw *8000 bushels of pickles*. It requires 40 barrels of rock salt to each thousand-bushel tank. After the salt is shoveled on, the tanks are filled with water, and the pickles are then safe until they are wanted to put into vinegar. Only the best grade of white-wine vinegar can be used in order to have pickles that will keep indefinitely without spoiling.

I inquired if there were not a good many farmers who would not succeed in raising even the $12.00 worth from an acre. They told me there were, undoubtedly. In fact, some of the 500 acres have been abandoned already. There were other men who had got their $12.00 back from their acre, and quite a little besides. I saw ¾ of an acre right in the town. It was a rich garden soil. This had already furnished pickles enough to make a good thing of it; and with suitable weather they expect to have pickles for a month or more from the same patch. I asked about the largest yield they knew of from a single acre, and I believe somebody secured last year for the Creston pickle-factory 200 bushels from an acre; but this was doubtless by some one who is an expert in *high-pressure gardening*.

OUR NEIGHBORS.

Beloved, let us love one another, for love is of God; and every one that loveth is born of God, and knoweth God. He that loveth not, knoweth not God; for God is love.—I. John 4:7, 8.

These words were given us by the beloved disciple. I have often thought of him, not only as beloved but as a *loving* disciple. He was a brave and a bright man, but at the same time he was a peculiarly affectionate and loving one. We know he was *brave* as well as affectionate, because he was the only one of the twelve who pushed his way clear to the foot of the cross and stood there while his master was crucified. Yes, and he was rewarded by hearing that same beloved master bid him look after and take care of the poor bereaved mother. It was this John who has so much to say, sooner or later, about love. In the language of our text he winds up by saying, "*God* is love." This fourth chapter seems specially devoted to love to God and love to each other. Now, let me confess to you that, in my earlier years, or, say, when I was a boy in my teens, I used to dislike to hear people talk about love. I do not know but I got something of a dislike toward the Scriptures because they have so much to say about love. From my point of view I thought it sounded "soft" — or, as the boys and girls say nowadays, "spoony." It might do very well for a mother to love her babe or for the babe to love its mother; and as I got along toward manhood I do not know that I had any particular objection to men and women loving each other; but I had a sort of feeling that they should talk about it when they were alone — try to keep it out of sight, as it were. When people talked about *men* loving each other it somehow or other conveyed the idea to me of men kissing each other; and, by the way, I suppose it is all right and just the fashion in some countries. Yes, even here in America — at least in some parts of it — I am told that male relatives, when they have not seen each other for a long while, have a habit of kissing each other as women do. Perhaps I might as well own up, while I am on the subject, that I am not yet converted to the fashion of promiscuous kissing, especially before folks. I once heard somebody say that a young woman should keep her lips for her husband or for her affianced lover; and I do not know but I would advise young men to do as much. Of course, this would not prevent a boy from kissing his mother or sister, or allowing them to kiss him. There is not much danger that boys will become too well acquainted with their mothers and sisters. But let us now go back to this idea of loving each other.

When somebody explained to me that love meant *charity*, and charity meant love, or at least pretty nearly so, that put a slightly different construction on the matter. When I got to be a business man, and met other business men, I must confess I was inclined, as a good many business men are, to laugh at Christians, and to call them soft and silly. And, by the way, I still think that many of the expressions used in prayer-meeting — at least some of the stereotyped expressions that *were* used in prayer-meeting when I was a boy — are rather unfortunate. I think the Endeavor Society has done very much to change these things, and to make religion a practical common-sense *every-day* business matter. The sentence prayers that have been recently introduced are a grand improvement over the long stereotyped prayers of years gone by. May be I am "built that way," as the boys say; but a sentence prayer is often about all I can handle and comprehend at "one dose." I do not mean to say that those long old-fashioned prayers were not good. As I came to understand them better, after I became a Christian myself, I was many times impressed with the sublimity and grandeur of the thought expressed. It was often, however, "away up in the skies;" and when the good old deacon who uttered those sublime and lofty prayers cheated his neighbor in trading horses — why, I lost faith. I do not think this happened very often; but I do think the prayers of olden times were further away from the practical lives people lived then than the prayers of the present time are from the lives we are living. Some of the older readers of GLEANINGS can remember when I first got a glimpse of what the religion of Jesus Christ and Bible teachings really mean. Let me explain a little by an illustration right here.

A few days ago a man ordered some buckwheat, and asked particularly to have us tell him all about preparing the ground and sowing it, for he was entirely new to the business and wanted us to be sure to send him our circular on the cultivation of buckwheat, as it was so late in the season he would have to go at it at once and get the seed in as soon as received. The seed went promptly by the first train; but his request for that circular, and his explanation that he knew nothing about growing the plant, were entirely passed by. The clerk who receipted the money said she supposed they always put a circular in each bag of seed. The man who sent the seed said he thought the clerks in the office answered his request. Now, we have arrangements to prevent just such omissions as this; but some way or other his kindly request, accompanied with the cash, received no attention of any kind. Then he wrote again, explaining that his seed was received, but not a line of directions. I was a good deal stirred up, and remonstrated. I said that, on general principles, everybody who has a hand in business should have enough *love* for his fellow-man so that he would not do things of this kind, and I think still I am right about it. Genuine love toward our neighbor is worth more in business and everywhere else in life than any thing else *in the world*. I hope you have all read Drummond's little tract, "The Greatest Thing in the World," for he agrees with me exactly. Paul tells us in that wonderful chapter, that, if we give all our money to the poor, and our bodies to be burned, and have not this kind of love, it amounts to nothing.

Now, please excuse me for taking myself as an illustration. Years ago growing buckwheat was a hobby of mine, as you may know. I asked questions of farmers, got suggestions and hints from the readers of GLEANINGS, and put the whole of it in pamphlet form. I told you how to grow buckwheat before sowing wheat, so the buckwheat crop would cost almost nothing. I gave other short cuts and discoveries to the man handling it. I watched the printers as they set up the type for that circular, and read it carefully again and again; and then I said that every purchaser of buckwheat might have one free of charge; and every time I saw a letter asking for that circular on growing buckwheat it gave me a pleasant thrill. I said to myself, "Won't this fellow be pleased when he sees in his circular all that is known about growing buckwheat, especially if he *wants* to know?" Well, for years past, whenever anybody has asked any sort of question about buckwheat, I have greatly enjoyed mailing him a circular. It would be *impossible* for *me* to forget any sort of request for it. It is my *hobby*, you know.* Mrs. Root says this may be all true, but that I have no right to expect that *other* people will be "enthused" over each one of my hobbies. She said my clerks would have to be more than human if they were. I replied that it was only good sound common sense to be enthused over what brings you your daily bread and butter. Just another point:

My enthusiasm over how to grow buckwheat made me in love with people I had never seen. Of course, it was a kind of "love at first sight." Now, some people do not believe in love at first sight. I do. I believe we ought to feel in love with people we have never seen, every day. We ought to *fall* in love with them, not the first time we see the person, but the first time we see a *letter* from him. We should be *glad* to find somebody who *needs* help. In that beautiful parable about the good Samaritan, the summing-up of the Master's teaching was that every human being is our neighbor *when he is in trouble*. If somebody is in trouble or distress, the Christian should forget all former differences, all circumstances and conditions, and spring to his rescue. I am inclined to think people do that a good deal nowadays. If a man were among thieves we would go to his relief. If he were a thief himself we would help him first and have him arrested afterward—that is, if he needed arresting.

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* Two things occur right here. The first is, that no particular credit is due me in this matter, for it was a sort of negative virtue. It was the outgrowth of my strong bent for hobbies, and for riding them to the uttermost. The second point is this: There is no kind of advertising in the whole wide world that can compare with this sort. A man may get out circulars of the most expensive kind, and he may sow them broadcast, and spend heaps of money in advertising his business; but if he has not this love for his fellow-man—love at first sight, as I have called it—for somebody who wants to have his questions answered patiently, his advertising amounts to almost nothing. As I look back over the years, I believe no one thing has done so much to build up our business as this matter of answering patiently, promptly, and thoroughly every inquiry, even in regard to the little details.

Now, when this matter of love is presented to the world in that light, nobody objects to it. If a man wants to hire a clerk, and he is told the clerk is a Christian, he may or may *not* think that is a recommendation. It depends upon whom the employer is; but when he gets acquainted with his clerk, and understands that his professing to be a Christian means that he is instantly "in love" with everybody who patronizes his employer's establishment, then the employer says, "All right; that is good. If that is what you mean by *religion*, give us the religion — send it along — can't have too much of it."

Just last week two of us were spinning along toward Niagara Falls. It was between four and five o'clock in the morning. All at once there was a sharp report, and the tire of my companion's wheel collapsed in an instant. Our program was suddenly broken up. Near by, however, was a ticket-office of the Niagara Electric Car Line. The agent said there would be no train until about nine o'clock that would carry wheels; but we could go to the Falls right away without the wheels. We finally decided to send our wheels back to Buffalo so that they would be in readiness for us after we had visited the Falls. The agent assured us they would be in Buffalo long before we reached there. On our return we saw our wheels right in front of the office where we left them. He did not send them down during the afternoon, and we waited for them till eleven o'clock at night in order to have a spin next morning. The wheels did not come. We wanted the agent at Buffalo to trace them by wire, but he said they could not do it. Then we wanted him to send a message by the car-driver, to be sure to bring the wheels in by the first car on the freight department. He could not do that — in fact, he could not (or *would* not) do *any* thing. When we were ready to leave Buffalo my companion made a trip back to La Salle and found the wheels just where they were left. He rode one and led the other all the way to Tonawanda. Now, the agent of this electric car line, it seems to me, was *remarkably* destitute of the kind of love the apostle John is talking about. After he had got our money he did not care any thing about us nor about our wheels. He would not even take the trouble to write a postal card saying the freight apartment was crowded was passengers, and had been ever since we left. The agent at Buffalo was the same sort of man. Notwithstanding the plain positive promise given us that the wheels would be in Buffalo before we were, he thought that very likely the best thing we could do was to buy another ticket back to La Salle, and get our wheels home in any way we chose. You may say this company was responsible. Very likely; but it was easier and perhaps cheaper to go after our wheels and bring them home than to fuss or bother with the trolley company.

Heretofore I have been speaking of the *lack* of this Christian love: let us now turn to a pleasanter side of the matter. At a recent meeting of our Anti-saloon League, in discussing finances some wonder was expressed at the exceeding liberality of a young business man in the northern part of the State. A member present said:

"Yes; and strangest of all he is the son of a saloon-keeper."

But another person who was present promptly added:

"You are wrong, Bro. ———. He is not the son of a saloon-keeper. He used to be; but by the grace of God his father has dropped the business and will nevermore touch it again."

At this point a Methodist minister from Cincinnati (Rev. James P. Mills) arose and spoke something as follows:

"Dear brothers and sisters, notwithstanding the great amount of urgent business to be got through with this afternooon, I think we can afford to consider briefly the little story I have to tell you. While I was pastor in the city of ———, in the Northern part of Ohio, I once invited a young man to sing in the choir, whom I knew to be of intemperate habits. I discovered he had a fine voice, and was trying to get some chance to make an effort to save him, as his father was a saloon-keeper. He seemed pleased with the invitation, and sang exceedingly well. But the next day my best soprano singer tendered her resignation, saying that, when things had got to such a pass that men were invited to sing when their breath smelled so strongly of liquors that one could scarcely stand near them, she thought it was time to 'draw the line.' I was in a dilemma. I visited the young man, and had a long talk with him. In fact, I had several talks. He gave up his drinking, and continued to sing in the choir. He was finally converted, developed wonderful abilities for business and in other ways, and very soon persuaded his father to give up the terrible traffic, and now is a magnificent Christian worker; and out of the gratitude of his heart he is now giving regularly these generous donations to our cause."

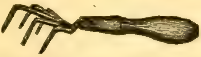
Dear friends, what do you think of a love like that? As his former pastor spoke, we could hardly repress the tears. It was his love for the unlovable that prompted him to reach out and plead so earnestly for one in the hands of the enemy; and it was this same love in the heart of the rescued one that prompted him to reach out in a similar way for his old comrades; and, through our Anti-saloon League, for thousands upon thousands throughout our beautiful State who are going down to ruin in the way he would have gone but for that faithful pastor.

HIGH PRESSURE GARDENING

STRAWBERRY GROWING, NO 2.

The beds I described in our previous issue will probably be used for growing plants to set out in the fields rather than for producing fruit, although by far the finest fruit can be secured by this same plan of sub-irrigation. When your beds are all full of plants, as they will all very quickly be providing you follow up the work without any neglect, you will probably need to set them out in the open ground. This plot of ground, be it large or small, should be thoroughly underdrained. The objection to sub-irrigation in the open air, I have already given. When you have potted plants to spare, put them out in ground well worked up and fertilized, in rows 4 feet apart. I would put the plants about a foot apart in the row. Run through them with your hand cultivators or horse cultivators, keeping the ground constantly soft and mellow, and free from weeds. When runners put out, pot them exactly as we described in the beds, using the jadoo fiber described in our Sept. 1st issue, on page 648.

In order to facilitate cultivating, every time you go to work potting plants, stretch a string on each side of the row. Now, have this string as near the mother-plants that are putting out runners as you can, and have just the young plants potted inside of the string, and yet arrange to have no two nearer than five inches from its neighbor. We do this in order that we may keep running the cultivator clear up to the line made by the string. The space between the plants must be kept mellow, and free from weeds, by some of the various hand weeders. Below is a cut of an excellent one for this purpose.



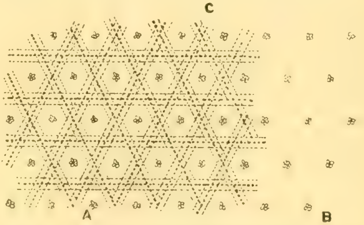
A HAND WEEDER FOR WORKING AMONG STRAWBERRIES.

Now, the above arrangement is all right for growing fruit on the plan called the matted-row system, only we avoid letting the plants stand near together, on the plan that Terry recommends.

If you want to grow extra large nice fruit, there is a still better way; but there are several objections to this "better way." First, it is lots of work to do all the cultivating by hand. Second, it is lots of work to keep the runners off. Third, while you are growing fruit you can not grow plants for sale; and where the plants are rare and valuable, this is quite an objection. But, dear friends, you must remember that in strawberry-growing you can not grow the finest fruit and grow plants for sale at the same time. In bee culture you can not get great crops of honey and a great amount of increase of colonies in the same season. You will have to decide whether it shall be more valuable plants, or simply grow big berries and more of them. By the way, perhaps I should say that, while you are growing plants, all *fruit-stems* should be clipped off. You can not get the finest plants if you let the mother-plants that are sending out the runners bear fruit.

We will suppose, then, that you have in your sub-irrigating beds, and even in your very rich beds in the garden, kept off all blossom-buds. You have got to the point where you have hundreds or thousands of nice strong plants with great bundles of roots. They ought to be potted transplanted plants. What shall we do with them? Well, in the first place we want a piece of ground — the nearer square the better, although this is not particularly important. It should be at least an eighth of an acre; but if you have not that much we will try to get along with less. Have it well underdrained, then work it up fine and soft down 12 or 15 inches, or even 18 inches deep, if you can afford the expense. If the patch is small, get some expert gardener to spade it two "spits" deep, working in all the manure meanwhile you can get hold of. If you do it with horses, spread as much manure on the ground as can possibly be plowed under. Have a man follow the plow to pull the manure into the furrow; and then after the ground is plowed and harrowed, get some fine manure that will not clog the cultivators, and work in a lot more in the surface. Harrow it or cultivate it until it is fine and loose; then roll it until it is level; and I would take considerable pains to level it with a rake and shovel before rolling it.

In order to have surface drainage as well as underdrainage I would have a good deep ditch all around the piece, and have the ground slope gently from the center toward these outside ditches. Never let the water stand in puddles on your strawberry-patch.



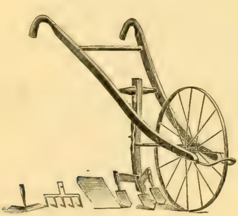
HOW TO PLANT STRAWBERRIES FOR HILL CULTURE.

Now with some sort of marker mark the plot, say from east to west, with marks as near 21 inches apart as you can make it. Any sort of mark that you can see plainly will answer. We now want to set the plants 2 feet apart in these marks; but you do not want them to come in squares. Each row of plants should "break joints" with the preceding row; then any three plants in the plot will stand in the form of a triangle; and this triangle will be 2 feet on each of its three sides. The diagram above will help us to get the idea.

You will see by the diagram that each plant is the center of a circle of six plants. The plants are equally distant from the center one and from each other, like the cells of a honey-comb, if you choose.

There are two reasons for planting in this way. When the plants are large and bushy, they entirely cover the ground much better than if they were planted in squares, and each plant has all the room it possibly can have. Second, you can cultivate them from right to left and diagonally two other ways—see marks made by the cultivator on the left-hand side of the cut above. With this arrangement every runner is to be clipped off just as soon as it can be seen. The plants are to be pushed into fruit-bearing. They are to make fruit and nothing else; and if you have never tried the experiment you will be astonished to see the size and beauty of the fruit grown in this way. All the great strawberry-growers all over the world are practicing this or a similar plan, where they want extra-fine fruit. If you mark the ground and put it out as above, your plants will be just about two feet apart from center to center.

Perhaps you may ask how to get these plants exactly on this equilateral-triangle arrangement. In the cut you will see three letters, A, B, C. These letters form an equilateral triangle. Make it as large as your plot of ground will admit. Take three strings of equal length; stretch one of them on the first row from right to left; then stretch the other two so they will meet at the point C. Now cut two sticks just 21 inches long, or the distance between the marks made by your marker. Use a stick at each end of the row to measure from the first string, and stretch the string every time you put in a row of plants. These rows are to be parallel, either with the line B C or A C. Set a potted plant wherever the string crosses a furrow-mark. The cultivating is all to be done with the hand cultivator or garden-plow pictured below.



COLE'S GARDEN-PLOW.

This plow has three teeth, as you will observe, and makes three furrows. The dotted lines between the plants in the cut are to represent these furrows. Run this cultivator through the plants in three different directions, as I have indicated, say as often as once a week; and be sure you run it once after every shower when the ground in the beds is in the best state to pulverize. Any boy will do it after you show him how, and he will think it is fun—that is, if the field is not too large and the boy is not too small. If you have a spell of dry weather, such as we are having now, keep your garden-plow going, and it will almost take the place of watering. In fact, that is what our garden-plow is doing just across the way while I write these lines. Some kinds of plants are better suited for this hill-culture system than others; but almost any variety will do ever so much better when it has room and good cultivation, and does not have to make runners.

SWEET CLOVER.

From Bulletin 74, of the State of Ohio, we quote the following in regard to sweet clover:

> Sweet clover was formerly included among those weeds whose destruction might be enforced under the statute. But this sweet clover, especialy the white sort, is rated by many as a valuable forage-plant. In this respect, without discussing its merits, it properly takes rank with white clover and other cultivated forage-plants. A bee-keeper of the State had sown an area to white sweet clover (Melilotus alba), for his bees to work upon. Under the statute, as enforced at that place, the authorities, after notice, entered the premises and cut down the plants. Sweet clover, and other plants of value for cultivation, should not be included among the weeds to be destroyed. There is now the best of opportunity, as well as urgent demand, to put Ohio weed laws into adequate and permanent form. Suggestions as to plants that should be included will be given in the weed bulletin now in preparation.

It is refreshing to know that our experiment station at least recognizes the mistake it has made; and the bee-keeper who had his sweet clover cut down on his own premises will probably get the value of his crop paid back to him, without question.

SWEET CLOVER, AGAIN; SOMETHING ON THE OTHER SIDE.

On page 536 I see Geo. W. Fair's question, "Is sweet clover a noxious weed?" About sixteen years ago I sowed, for a permanent pasture, red, alsike, sweet clover, and timothy. All grew to some extent. The second year I found nothing I had would eat the sweet clover. Horses, mules, cows, calves, sheep, and hogs all had access to it. I then plowed it up and cultivated the land and sowed the second year with mammoth, red, and alsike clovers, and timothy. Every year since, I have cut the sweet clover around the fences from one to three times. It has been my aim not to let any go to seed. I did the work myself. To-day I have been at it for the second time in 1897. I wrote to the *American Bee Journal*, stating my experience after I had tried it a few years, asking as a favor to notify the farmers. The answer was, "Your experience differs from that of others." Mr. Editor, if you will try to exterminate it for two or three years on a short piece of roadway or from fence-corners, you will be convinced. It is in Warren, Benton, Fountain, and Montgomery Counties; and on the highway, when stock is allowed to run, it is three feet high, while grass is quite short. In the closed counties the supervisors of the roads have it cut. I have talked to many of the farmers, and all condemn it as a weed. You say, "Teach your neighbors to make hay of it." Fence it off and turn cattle in, and let them starve. You say, "If you really want to get rid of it, wait till spring." Rot! If you want to get rid of it, don't let it seed; don't sow it. As for passing this journal around in the above counties, I wish to be excused. You may do that. I had it this year four feet high in pastures spoken of above. You seldom see catnip in pastures or in cultivated fields. I have received many benefits from the bee-papers, but it was through their influence I sowed sweet clover.

The seed may have a market value, but so has mustard seed: yet not many persons would advise farmers to sow mustard seed along the highway, to the detriment of others. I can show you sweet clover in the highway not as much molested by the stock that run there daily as is the mustard. Yes, I make mistakes, but you have made one that has done much damage to the farmers, and has been the cause of much hard feeling toward the bee papers. I believe that farmers will continue to blame any one who advocates the spreading of the noxious weed, sweet clover. Do you find mustard or mullein in your strawberry patch at fruiting time? Here, and in Central Illinois, where we can grow any of the usual hay and grasses, we have no use for it, and I don't think much of any one who will advocate it. He is only making enemies; and it appears to them that he does it for gain. The question Mr. Fair asked is, how to eradicate it. If you know, tell us. I confess my twelve years' labor have not done it. I am glad I have not let it spread on my neighbors, and have it confined to the one pasture and the fence-corners. J. A. JOHNSTON.

Green Hill, Ind.

I have given the above because I wish to have a fair hearing on all sides of the question. But I must still think our good friend Johnston has not exactly got the hang of the plant. I can not believe it possible that his horses and cattle are so different from those found elsewhere. Whenever I am away from home I am always watching to find a place where sweet clover seems to be crowding something else, but I have not found it. It is not in cultivated fields, it is not in pasture-lots, and I have never seen it in meadows. If it should get in with hay, especially if cut early, I can not imagine a horse or cow that would pick out the timothy and common clover and leave the sweet clover. So far as I can discover, it seems to occupy unused waste places, such as the banks along our railways, and roadsides where stock is not allowed. Where there is excellent feed along the roadsides, the cattle may choose the grass and clover first, because they have not learned to eat the sweet clover.

HOW TO GET RID OF SWEET CLOVER.

In the first place, cut it down before it produces seed, the same as you would any other plant. Second, turn on stock in the spring if practicable, and put enough stock in the field so they will eat up the sweet clover before it can go up to seed. Third, plow it under before it produces seed. Some one of the three above ways can almost always be found practicable. The principle difficulty will be in the fence-corners, where no stock is kept, or on railway ground; but as it has never yet got over into cultivated fields adjoining railroad ground and roadsides, on our premises, I can not understand how it should do any appreciable damage in any locality, where confined to these waste places. I am continually watching for it in my travels; and just as soon as I can find a place where it is detrimental to growing crops, pasture lands, or meadows, I will gladly report.

MULBERRIES — WET OR DRY LOCATIONS.

On page 535 you say that the Downing mulberry is like the willow. You will find yourself wrong in that. The mulberry does best upon dry clay ridges or well-drained land. There are, on the farm where I am writing, over 300 of those trees planted for a windbreak for the apple orchard, and some of them were planted on low land, and near the willow. The mulberry-tree died out on the wet land, while the willow died out on the high dry land. The mulberry will stand plenty of water if the drainage is good. You speak of the taste of the mulberry. You will find that trees from the same nursery differ very much in their fruit, ranging from very sweet to very acid. I find a great difference in the fruit of trees that are growing side by side, as well in the size of the fruit as in the taste of it. In all the 300 or more mulberry-trees on the farm here I find only one tree whose fruit to me tastes like the mulberries which grew in New York — the ones I ate when I was a boy. I find that the best fruit is on the high and dry land and remains upon the tree longest. I do not write for publication, but to let you know how it works here to plant the mulberry tree on low or wet land.

Cuba, Kan., Aug. 6. WM. H. EAGERTY.

You are doubtless right in regard to the mulberries. The tree I spoke of near the little fountain was situated right over the underdrain. The ground was kept damp around the roots of the tree during dry weather; but the drainage was so perfect there could never be any standing water. I am inclined to think you are also right in regard to the quality of the fruit; and it would be nothing strange if we should be obliged to resort to grafting as we do with peaches, apples, and other fruit, to insure having the best results. Now, then, have we a nurseryman who offers mulberry-trees grafted with select choice fruit?

HIGH-PRESSURE GARDENING, ETC.

It was a cruel disappointment that the department of "High-pressure Gardening" was omitted in Aug. 15th GLEANINGS. Helpful hints are contained in these articles, that benefit hundreds of your subscribers. A better word would be *friends*. I. DONNELLY.

Indian River, Mich.

Why, friend D., there was "High-pressure Gardening" in the August 15th number, although I did not put in the heading. I told about the cold-frame plants at Mr. Miller's, the onions at Mr. Atwood's celery-farm, the potatoes at Wilbur Fenn's, etc. But I thank you for your suggestion, and will try hereafter not to omit that particular "dish" from my semi-monthly bill of fare.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

STRAWBERRY-PLANTS FREE TO EVERYBODY WHO SENDS $1.00 FOR GLEANINGS.

I actually forgot to say to the friends, in our last issue, that I would continue sending the Darling strawberry-plant postpaid to every one sending us $1.00 any time this fall; and as we now have a stock of plants of the Earliest, as well as Darling, you may have either one. Remember, a transplanted potted plant in jadoo fiber, postpaid by mail, free of charge, to everybody who sends us $1.00 for GLEANINGS this fall. It probably would not be worth while to try to winter them over after October unless you have a greenhouse, cold-frame, or similar protection. As for ourselves, by the aid of glass we expect to keep growing and potting these valuable plants clear on till Christmas.

WHAT CROP TO PUT OUT IN SEPTEMBER.

Well, it is just now time to sow Wakefield cabbage-seed to get plants of the right size to winter over in cold-frames. It is also just the time to start Grand Rapids lettuce, to have nice lettuce for Thanksgiving and the holidays. In our locality here in Northern Ohio, it is just the time to sow wheat or rye; and if you have sheep or stock that use the feed, it is just the time to sow dwarf Essex rape. Remember, this will stand almost as much frost as wheat and rye. Sow a piece of it where the poultry run, and it will give them green feed clear up to Christmas, and may be later.

If you put out strawberry-plants now, you must have *potted* plants, or have your ground sufficiently rich so they will get rooted well enough to stand the freezing and thawing. Our special strawberry circular will be mailed free of charge.

Of course, you do not want to forget to try hardy onion-sets put in the open ground this fall. We succeed nicely with the American Pearl and Prizetaker. And, by the way, there has been an unusual demand this fall for *Egyptian* onion-sets. We are entirely sold out of top *sets*, but we have a great abundance of bottom sets, or onions that have split up. These are just as good for planting, and some people think better, than sets. Price $1.00 per bushel. See price of onion-sets, page 647, Sept. 1st issue.

Radishes put in good rich ground in the open air will usually make a nice crop before freezing weather; and the best variety for this purpose is the Chinese Rose Winter. And now is the time to put in spinach for wintering over, in most localities.

Now is the time to sow seven-top turnip-seed for plants that will winter over. But these make no root, but furnish greens in the spring, and, a little later, almost the first blossoms for honey. It comes in between fruit-blossoms and clover. If you are going to try it, it should be put in at once.

SEED POTATOES FOR 1898.

At present writing, Sept. 15, nobody can tell definitely just what potatoes are going to be worth; but I have taken the liberty of offering all the varieties mentioned below, except Manum's Enormous, at an even dollar a bushel, or $2.50 a barrel; and as they are worth this much in many localities for table use at the present time, I think our prices are very fair. The second size of any of these, until they are sold out, will be just half the amount. As we always run short of these second size long before spring, it might be well for you to put in your order now if you want them. I have just examined the potatoes raised by T. B. Terry, Wilbur Fenn, and others in their neighborhood, and I am very glad to tell you they are nice and clean, and, so far as I could learn, not a rotten potato has yet made its appearance anywhere in this locality. We should be pleased to send you samples by mail at prices given in the table, if you want to see them before buying.

NAME Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Busnel.	Barrel—11 pk.
White Bliss Triumph	$ 15	$ 35	$ 20	$ 35	$ 60	$ 1 00	$ 2 50
E. Thoro'bred, Maule's..	15	35	20	35	60	1 00	2 50
Early Ohio..........	15	35	20	35	60	1 00	2 50
Early Norther	15	35	20	3	60	1 00	2 50
Burpee's Extra Early....	15	35	20	35	60	1 00	2 50
Freeman	15	35	20	35	60	1 00	2 50
New Queen	15	35	20	35	60	1 00	2 50
Monroe Seedling..........	15	25	20	35	60	1 00	2 50
Rural New-Yorker No. 2..	15	35	20	35	60	1 00	2 50
Sir William	15	35	20	35	60	1 00	2 50
Carman No. 1	15	35	20	35	60	1 00	2 50
Carman No. 3	15	35	20	35	60	1 00	2 50
Koshkonong.............	15	35	20	35	60	1 00	2 50
Manum's Enormous......	30	75	30	50	85	1 50	3 50
New Craig..................	15	35	20	35	60	1 00	2 50

SPECIAL NOTICES
FROM
BUSINESS MANAGER

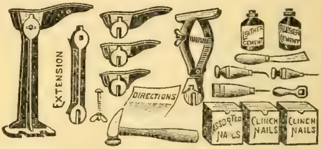
We have now a few Danzenbaker hives in the flat, and made up and painted, ready for bees, for those who will order at once. Some may desire to transfer colonies from other hives so as to be ready for next season. Mr. D. says he expects to transfer 50 colonies this fall into his new hive; and another party is going to transfer as many more.

HONEY MARKET.

We are having a very fair demand for honey, both comb and extracted. We have a good supply of comb on hand and engaged, both fancy and No. 1 grades; are also prepared to furnish buckwheat comb honey. In 100-lb. lots and upwards, in original crates, we ask 13 cts. per lb. for fancy, and 12 cts. for No. 1; 11 cts. for fancy buckwheat, and 10 cts. for No. 1. Large lots for direct shipment quoted on application. We have a variety of extracted honey to offer. Willow-herb honey was almost a failure this year. We have secured nearly a ton of it, somewhat mixed with clover, which is still in Michigan. We offer this in 5-case lots (120 lbs. to a case) at 6 cts.; can supply water-white California honey or clover at the same price. Light amber California at 5½ cts. in 5-case lots; smaller lots at ½ ct. more. We have also two barrels of the Florida tupelo honey, which is very fine; shall be pleased to hear from those in want of honey.

GLEANINGS FOUR MONTHS FREE.

We wish to extend our subscription-list by several thousand names during the next few months. As a help toward that end we offer the remainder of the year 1897 for 25 cts. To those who send early we will mail the two August numbers, as long as we have a supply, as well as the remaining four months of this year. Will not many of our readers bring this offer to the attention of their neighbor bee-keepers who are not taking GLEANINGS? As an inducement to you to do so we make the following liberal offer:



ROOT'S HOME REPAIRING OUTFIT NO. 2.

We sold this outfit for years at $2.00, and that is still the list price, and price at which it is usually sold. About a year and a half ago we reduced the price to $1.50, and again last spring we made it $1.35. We have quite a number of these outfits on hand which we desire to get into your hands where you can make them valuable in various kinds of mending. We will furnish one of these outfits, together with GLEANINGS for the rest of this year, for the price of the outfit alone—$1.35. Now, if you can induce your neighbor to accept the offer above, put $1.10 with the 25 cents he gives you, and send to us and we will ship you one of the outfits. If you wish to renew your own subscription at the same time, send us $2.25 for GLEANINGS one year, to yourself the rest of this year (4 or 5 months) to a new subscriber, and the No. 2 repairing outfit. Or if you can not secure the new name we will send the outfit, with GLEANINGS one year, for $2.00, the price you would ordinarily pay for the outfit alone. Please remember that, if you are in arrears on your subscription, all arrears should be sent in addition, as this special offer is made for subscriptions paid fully in advance.

CONVENTION NOTICE.

The Southeastern Tennessee Bee-keepers' Association will hold its annual session at Cookson's Creek, on Friday, October 1st, 1897, beginning at 9 o'clock A.M. Bee-keepers are earnestly requested to be present. The program foreshadows entertainment for the most fastidious. W. J. COPELAND, Sec.

Fetzerton, Tenn., Sept. 3.

THE GLEANINGS CONTRIBUTION FOR THE STARVING PEOPLE OF INDIA.

Since our last report we have received from Will Ellis, St. David's, Ont., Can., $1; J. W. Margrave, Hiawatha, Kan., $1, which has been forwarded as per following receipts:

BOSTON, July 3.

The American Board of Commissioners for Foreign Missions acknowledges the receipt from Chas. Booth, $5; Albert Eckerman, $1, and Will Ellis, $1.

Also, July 2, the American Board of Commissioners of Foreign Missions acknowledges receipt of $1 from J. W. Margrave, Hiawatha, Kan.

We have also received from C. A. Bunch, Nye, Ind., $3.

The strawberry plants I received of you are doing well. Last year, from 20 rods of ground I sold $30.00 worth, gave away $14.00 worth, used in family $16.00 worth, making $60.00—very good. They were Haverland, Warfield, Sharpless, Crescent, and Parker Earle.

West Hoosick, N. Y., Sept. 4. WM. P. ABBOTT.

The Weed foundation is the nicest I have ever used. It seems to be very tough, even at a temperature of 85 degrees—something I have never noticed in any other foundation I have ever used. J. E. MOTTER, JR.

West Alexandria, O., June 16.

CLOSING=OUT SALE

At Greatly Reduced Prices.

I have one hundred good Italian queens that must be sold within next two weeks to close up business for the season. Price each, 50c; or 10 for $4.00 Can send either light albino strain or dark leather color. If you have old queens — hybrids or blacks—you wish to supersede, this is a rare chance to do so cheaply.

Address

W. W. CARY, = Colrain, Mass.

25 Cts. PER YEAR!

for the best agricultural and
stock-breeders' paper published,

Stuart's Agriculturist.

Agents wanted! Bicycles, etc., free. Address

WHITWORTH BROS.,
Printers & Pub'rs, 60 High St., Cleveland, O.

Queens. Untested queens, 50c each; tested, 75c; Breeders, $2. Either leather or golden. My golden breeders breed all 5 banded bees.
W. H. LAWS, - Lavaca, Ark.

CHAS. ISRAEL & BROS.,
486, 488 & 490 Canal St., Corner Watts St., N. Y

LIBERAL ADVANCES MADE ON CONSIGNMENTS.

HONEY AND BEESWAX.

WHOLESALE DEALERS & COMMISSION MERCHANTS. Established 18 5

GERMAN CARP WANTED.

1000 this year's; 100 or more last year's. Prices must be reasonable. Send offers to
DR. WM. MOERSHEL, Homestead. Iowa.
Carp to be shipped in August or September.

No cheap Queens to sell; but the best.

Golden 5 band, or 3 band from imported mother. Untested, 75 cts.; tested, $1.00.
L. BEAUCHAMP, Box 613, San Antonio, Texas.

What They Say about the Pouder Honey=jars.

BAYONNE, N. J., July 31, 1897.
Walter S. Pouder, Indianapolis, Ind.

Dear Sir:—In reference to the way in which you pack your jars, would say that we kept a strict count on the last shipment, making a memorandum of the number of broken ones in each case when opened. We found upon finishing the 1200 jars that we had 14 one-pound and 2 half-pound broken, or an average of one and one-third jars to the case. This is a big improvement when we look back to the time when we received them packed in straw from other houses, with all the way from 4 to 10 in a case broken. Wishing you and your business success, we remain

Yours truly, HOLDING BROS.

MAKE MONEY! YES. HOW?

With poultry, bees, and flowers. Particulars free.

COOK BROS.,
Scio, - Harrison County, - Ohio.

QUEENS, Either 3 or 5 banded, 60 cents each; 6 for $3.00 Nuclei and supplies cheap.
CHAS. H. THIES, Steeleville. Ill.

FOR SALE.—Italian queens, 50 cents each.
MRS. A. A. SIMPSON, Swarts, Greene Co., Pa.

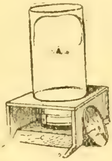
Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Don't Neglect Your Bees.

Bee-keeping may be made uniformly successful by judicious feeding. It is just as important with bees as with other stock.



Success in feeding depends very much on the feeder used. When you have tried the

Boardman Atmospheric Entrance=feeder

you will be convinced of this.

For descriptive circulars and price list, address

H. R. BOARDMAN, East Townsend, Ohio.

THE A. I. ROOT CO'S
Shipping-cases for Honey,
AT THEIR PRICES—THE FINEST MADE.
CASH FOR BEESWAX.
M. H. HUNT, Bell Branch. Mich.

QUEENS. Untested golden beauties, or 3-banded. 45 cents each. Write for wholesale prices. I have good bees. To be convinced, order a sample queen. This is a money-order postoffice.
DANIEL WURTH, Falmouth. Rush Co., Ind.

FOR SALE. — 500 very choice Italian red-clover queens at 50 cts. each; ½ doz., $2.80; tested, 75 cts. Our bees made 50 lbs. per colony of red-clover honey this season. 15 years' experience in queen-rearing.
LEININGER BROS., Ft. Jennings, Ohio

Wants and Exchange Department.

WANTED.—To exchange 140 colonies of bees, with all fixtures belonging to a first-class apiary, for good horses and mules.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange the world-wide encyclopedia (Encyclopedia Britannica Revised) comprising 15 vols., bound in green silk, weight 40 lbs., 6902 pages, for white-clover honey or offers.
A. H. KANAGY, Milroy, Mifflin Co., Pa.

WANTED.—To exchange 28 new volumes Encyclopedia Britannica for honey. O. H. HYATT,
Shenandoah, Page Co., Iowa.

WANTED.—To exchange some fine collie shepherd pups for any thing useful. I also have some fine pigeons and a fine blood-hound pup to trade.
CLAUD BRILLHART, Oakwood, Paulding Co., Ohio.

WANTED.—To exchange 16-section non-drip cases at Root's prices, laid down at your station, for fancy comb honey at prices to suit the times. Also second-hand 60-lb. cans, 2 in a case, valued at 25 cts. per can, freight paid, for gilt-edged extracted honey. Special price on quantity lots. B. WALKER,
Evart, Mich., or 541 Van Buren St., Chicago.

WANTED.—To exchange Plymouth rocks or white leghorns for queens, incubator, or offer.
J. FERRIS PATTON, Newtown, Ohio.

THE S. & H. CO.
desire to enter into correspondence with all contemplating the purchase of anything in their line. They think they have one of the most complete assortments of strong, smooth, healthy,

FRUIT AND ORNAMENTAL TREES

Small Fruits, Vines, Shrubs, Roses, Bulbs, Hardy Herbaceous Plants, Greenhouse Stock, Etc., on the market and invite all buyers to come and see for themselves. They are to be found at the old stand where they have labored faithfully for the past 43 years to build up a reputable business. Catalogues free.

Address **THE STORRS & HARRISON CO., Box 8, Painesville, O.**

IF YOU WANT BEES

that will just "roll" in the honey, and that are wonderful red-clover workers, also gentle to handle, and exceedingly hardy, then try **MOORE'S STRAIN OF ITALIANS,** the result of 18 years of careful breeding.

Warranted queens, 75 cts. each; 3 for $2.00; per doz., $7.00; select warranted, $1.00; 3 for $2.50. Safe arrival and satisfaction guaranteed. Circular free. Those who have never dealt with me I refer to A. I. Root, who has purchased of me over 850 queens.

J. P. Moore, Morgan, Pendleton Co., Ky.

MUTH'S HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
ROOT'S GOODS AT ROOT'S PRICES,

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "**Practical Hints**" will be mailed for 10 cts. in stamps. Apply to

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1-lb., with Corks, $4.50 per Gr.
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and every thing in the Apiarian line.
Catalog free.

Apiary,
Glen Cove, L. I.

I. J. STRINGHAM,
105 Park Pl., N. Y. City.

FARM BEE-KEEPING.

The only bee-paper in the United States edited exclusively in the interest of the farmer bee-keeper and the beginner is THE BUSY BEE, published by

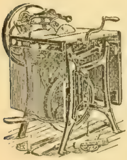
Emerson T. Abbott, St. Joseph, Mo.

Write for *free sample copy now.*

QUEENS BY RETURN MAIL.

Daughters of best imported queen mother, warranted purely mated to drones of imported stock from a different source; hence, a direct cross. 12 years as a honey-producer on a large scale has taught me what good queens mean to the producer, as well as how to rear them. Price of queens, 50c each. Safe delivery and satisfaction, or money refunded.

L. H. ROBEY, Worthington, W. Va.



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Fruit Packages of All Kinds,
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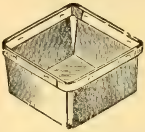

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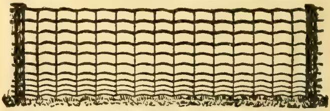
BERLIN FRUIT-BOX CO.,
Berlin Heights, Erie Co., Ohio.



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PATENT LAWYERS,
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CALL OR WRITE. ADVICE FREE.

Do You Want
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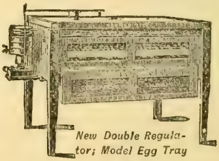
An Honest Machine,
Honestly Built,



New Double Regulator; Model Egg Tray

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"NEW AMERICAN."

Want Our Catalogue?

It's a pretty book of 68 pages, finely Illustrated; worth dollars to every poultryman. A 2c stamp gets it.

GEO. J. NISSLY, SALINE, MICH.

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Honey Column.

CITY MARKETS.

NEW YORK.—*Honey.*—Comb honey has been arriving for the past few days very freely so that the market at present is well filled. On account of the weather being a little warm, honey is selling a little slowly. We quote you our market as follows (shade prices from 1 to ½c per lb. on large sales): Fancy white clover, 12@12½; No. 1 white clover, 10@11; buckwheat, 8½@9½. Extracted honey, California, is selling quite lively at the following prices: White, 5@5½; light amber, 4½@5. Southern is very dull, and is selling from 50 to 55. New York State extracted honey, not much in demand as yet. Beeswax receipts rather light. We quote 25½@26; must be very fancy to bring outside price. Write us before shipping.

FRANCIS H. LEGGETT & CO.,
Sept. 25. New York.

ALBANY.—We hardly think there is as much honey on the market as there was a year ago at this time, but there is ample to supply the demand. We think prices will range a little higher than last year, as business prospects are brightening up. White clover, 11@12; fair to good, 10@11; buckwheat and mixed, 8@9. Extracted in light demand.

CHAS. MCCULLOCH & CO.,
Sept. 25. Albany, N. Y.

DENVER.—We find our honey trade improving since the first of the month, especially with extracted. Comb honey was never known to sell as low as it is now, and it is the farmers and small bee-keepers that have ruined the price by selling to the stores at any price they were offered. The highest possible price we can quote fancy white comb honey is 10c; and No. 1 white at 9c; No. 1 white extracted, 4½@5; good clean beeswax, 25.

R. K. & J. C. FRISBEE,
Sept. 6. Lock box 1014, Denver, Col.

MILWAUKEE.—The receipts of new-crop honey are beginning to come in, and the quality improved. The supply is not equal to the legitimate wants of our trade, and with improved conditions of trade we expect to sell more than last year. The demand so far is not heavy, but we feel, to encourage our shippers, that it will come. We quote white No. 1 comb 1-lb. sections, 11@13; amber, 8@10; white extracted, in bbls. and kegs, choice, 4½@6; dark or amber, in bbls. and kegs, 4@6; beeswax, 25@27.

A. V. BISHOP & CO.,
Sept. 6. Milwaukee, Wis.

CHICAGO.—Comb honey sells a little more freely, yet receipts are in excess of sales, and some shippers of small lots get impatient at what seems a long delay in getting returns, yet it can't be forced without detriment to general interests. Best grades of white comb bring 12c; white but objectionable, 10@11; amber and dark, 7@9; extracted white, 5@6; amber, 4@5; dark, 3½; beeswax, 26@27.

R. A. BURNETT & CO.,
Sept. 6. 163 South Water St., Chicago, Ill.

COLUMBUS.—Fancy white clover, 12½; No. 1, 11. Arrivals no heavier; demand better, but no improvement in prices. Large sales are impossible, and as yet are having no trade from near-by towns.

THE COLUMBUS COMMISSION & STORAGE CO.,
Sept. 6. 409–413 N. High St., Columbus, O.

CINCINNATI. Demand is fair for extracted and comb honey, and considerable honey is arriving, but not much more than is justified by the demand. As the range of prices, we quote for choice white comb honey 11@13. Cincinnati is no market for dark comb honey. Extracted sells for 3½@6, according to quality. Beeswax is in good demand at 20@25 for good to choice yellow.

CHAS. F. MUTH & SON,
Sept. 7. Cincinnati, O.

DETROIT.—Best comb honey, 10@11½; best extracted, 5@5½; beeswax, 25@26.

Sept. 7. M. H. HUNT, Bell Branch, Mich.

ST. LOUIS.—We have no special remarks to make in regard to the honey market. Prices are nominal at last quotation. Weather is too hot for the sale of honey. Beeswax is a little firmer, being 24½@25 for prime stock.

WESTCOTT COMMISSION CO.,
Sept. 9. 213 Market St., St. Louis, Mo.

CLEVELAND.—We quote selling to-day as follows: Fancy white, 13; No. 1 white, 11@12; fancy amber, 10; No. 1 amber, 8@9; buckwheat, 6; fancy white extracted, 6½; beeswax, 25.

A. B. WILLIAMS & CO.,
Sept. 8. 80-82 Broadway, Cleveland, Ohio.

NEW YORK.—New-crop comb honey arriving more freely, and demand good. We quote fancy white, 12@13; off grades white, 10@11; buckwheat, 9@10. California extracted selling fairly well, while all other kinds are neglected. We quote California white, 5@5½; light amber, 4½@5; Southern, 50@55 per gallon; beeswax dull, and easy at 26.

HILDRETH BROS. & SEGELKEN,
Sept. 7. 120-122 W. Broadway, New York.

PHILADELPHIA.—Honey coming in freely, and some call for comb, but the hot weather of the last few days stops sales somewhat. We quote fancy white comb 13½; No. 1 white, 11@12; no dark comb in yet; white extracted, 5½@6; amber, 4@5; beeswax, 25. We are producers of honey; do not handle on commission.

WM. A. SELSER,
Sept. 7. 10 Vine St., Philadelphia, Pa.

BOSTON.—We quote you our honey market as follows: Fancy white comb in 1-lb. sections, 14; No. 1, 12@13; white extracted, 7; light amber extracted, 5@6; beeswax, very light supply, 27. Good demand.

BLAKE, SCOTT & LEE,
Sept. 7. Boston, Mass.

KANSAS CITY.—We quote No. 1 white comb, 11@12; fancy amber, 10@11; No. 1 amber, 9@10; fancy dark, 8@9; No. 1 dark, 8; white extracted, 5½@6; amber, 4½@5; dark, 4@4½; beeswax, 22@25.

C. C. CLEMONS & CO.,
Sept. 7. Kansas City, Mo.

MINNEAPOLIS.—No. 1 remains same—no change, 11@12. Other grades accordingly. Supply equal to demand.

S. H. HALL & CO.,
Sept. 6. Minneapolis, Minn.

FOR SALE. — 25 bbls. extracted pure white-clover honey, very light in color, and of finest quality, at prices as cheap as the cheapest, quality of goods considered. Can put it up in any style of package. Write for price, stating quantity desired.

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—A lot of good extracted clover honey in 60-lb. cans. JNO. A. THORNTON, Lima, Ills.

WANTED.—To buy quantity lots of fancy comb honey in non-drip cases.

B. WALKER, 541 Van Buren St., Chicago.

FOR SALE.—Alfalfa honey, light amber, in carload lots. 3¼ cts. per lb.; sample, 10 cts.

JOHN NIPPERT, Box 1051, Phœnix, Arizona.

FOR SALE.—Pure honey.—Clover, extracted, 6½ cts. per lb. Buckwheat, extracted, 4½ cts. per lb.

I. J. STRINGHAM, 105 Park Place, N. Y. City.

FOR SALE.—Buckwheat extracted in 50 and 210 lb. packages f. o. b. for 4¼c a lb.

W. LAMAR COGGSHALL, West Groton, N. Y.

FOR SALE.—1000 lbs. of fine buckwheat comb honey.

D. F. LASHIER, Hooper, Broome Co., N. Y.

FOR SALE.—Choice honey, 6000 lbs. in well-filled sections, at 9½c per lb.; extracted, 4½.

W. C. GATHRIGHT, Dona Ana, N. M.

A Tested Queen and the Review for $1.50.

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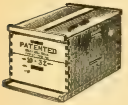

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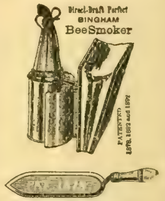

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A Journal Devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

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STRAY STRAWS

FROM DR. C. C. MILLER.

THE PLAN given by W. H. Eagerty, p. 666, for sowing sweet clover, is the best I've ever seen, especially having the seed tramped in by horses.

WHEW! but haven't we had a hot September—at least the first half? [Yes; and three days afterward there was a fall of 50 degrees in the temperature.—ED.]

SCOTTISH HEATHER, we are told on p. 663, abounds in New Jersey. Is there no mistake about this? Never heard before that it grew anywhere in this country.

ANY OPENING for ventilation that comes close to the sections hinders greatly their sealing at that point; but it has seemed rather an advantage for extracted honey.

BRO. A. I. ROOT, tell that high-pressure-gardening man who got 200 bushels of pickles from an acre to come to Marengo and learn how to raise pickles. John Boyle got 236 bushels from three-fourths of an acre.

MCINTYRE is right, p. 670, that stirring honey hastens granulation—one reason, probably, why extracted granulates sooner than comb. The Germans sometimes put honey through a sort of churning process to hasten granulation.

REFERRING to p. 671, I don't think I'd want to put a few cases of honey loose in a car, but I think that's what Mr. Niver said the railroads recommended; and when I distinctly asked Capt. Hetherington about it, I think he agreed to the same thing.

NORTHERN ILLINOIS had a good honey year. At a bee-keepers' convention at Freeport, 843 colonies were reported as yielding an average of 60 pounds each, nearly half of it being comb honey. [If you have told us, doctor, I have not seen whether you had a good honey year.—ED.]

HOW QUICKLY bees notice any change in appearance at a time when forage is scarce! Set a hive in a new place, or put an extra story on it, and promptly the robbers will interview it to find if there are weak places. At the same time, a weakling not half so able to protect itself will be left untouched so long as there is no change in outside appearance.

NOWADAYS the bees are almost as good as a weather-cock. When the wind is from the north, a cloud of bees hovers about the south screen-door of the honey-room all day long. When the wind is from the south, not a bee is seen at the south door; but they're frantically trying to force an entrance at the north door.

J. A. BUCHANAN'S plan of handling "only such grades of honey as will not candy, or are very slow to do so," is an excellent one for him; but what are those fellows to do who produce only alfalfa? Somewhere, somehow, the problem of candied honey must be met, and happy is that bee-keeper whose customers are trained to cope with it.

A PREVAILING VICE among preachers is using a story for illustration and leaving the story half finished. I read aloud p. 679, my audience giving best attention; but when I got through they insisted on my telling them whether that man ever got his buckwheat circular. I told them I didn't know, and now there's coldness in the family.

J. A. JOHNSTON, p. 682, is right to a certain degree. It isn't easy to kill out sweet clover in fence-corners and on roadsides. But then, it isn't any easier to kill out other weeds in the same places; and where the ground is plowed, sweet clover is no more troublesome than other weeds. Give sweet clover fits where it deserves it, but please be fair.

VERY SELDOM are the difficulties of grading shown up as well as they are on p. 673, and I doubt whether any set of grading-rules that can be relied on to buy and sell by can ever be formulated without a number of distinct specifications and the use of a good deal of language. [I do not like to give up the idea of getting a satisfactory set of grading-rules, but Mr. Calvert, our honey-man, has come pretty near knocking the notion all out of my head.—ED.]

W. H. EAGERTY, p. 666, advises me to spread section stuff on grass in shade rather than pour water on the grooves. But, friend E., I can't afford to wait till grass grows; and, besides, I wet a whole boxful before taking them out of the box, taking a very few minutes, and it would take a long time to spread sections out on the grass and then gather them up. Generally they don't need any wetting—only the few, if any, that have been left over from previous year.

Some things are to be discussed at the Nebraska State convention. Four of the topics are: "Some things I don't know;" "Some things I know;" "Some things I should like to know," and "Some things every one ought to know" about bee-keeping. [You ought to be there, doctor, to discuss the first of the quartet of subjects.—Ed.]

C. H. Dibbern says the plan spoken of in a former Straw, of putting a cone escape on the mother hive, will surely prevent after-swarms; but in 12 days hardly a bee will be left. The bees eat up all the unsealed brood, either from thirst or alarm at the field-bees not returning. I don't know how long Isaac Lundy leaves the escape on; but would it be necessary for more than eight days? Or how would it do to put it on in six or seven days after the first swarm, and leave it on three or four days?

F. A. Gemmill, in *Canadian Bee Journal*, says he has had success wintering on solid sealed combs of honey, and quotes McEvoy as indorsing him. Others in same number object to it. [We have made a practice for years of giving solid sealed combs of honey, and putting them right into the brood-nest for winter stores. The fact that our loss for a number of years does not much exceed two per cent is pretty good evidence that the practice is not as harmful as some people think.—Ed.]

That correction, p. 669, as to the way the queen makes the piping noise, is all right, and should have been corrected in A B C about ten years ago. But the other correction won't stand. According to the authorities, the bees laboriously masticate the wax with salivary secretion, which agrees with the statement of A B C. The only way they could get acid from the poison-sac would be through the sting. [Yes and no. Well, I don't know. I never saw a queen pipe yet but there was a decidedly tremulous motion to her wings.—Ed.]

"We expect to make our hives next year so that the entrances will be an inch deep, and the full width of the hive.—Gleanings, p. 661. Good thing! Could hardly make it better, unless with every hive you give a township right to hoist the hive on four ¾-inch blocks. But, say! How are you going to enlarge the entrance? If by cutting away part of the front of the hive, I object. All my life I've had hives with entrances cut out of the hive; but since learning the comfort of dovetailers that will sit on one another bee-tight, no more of the old kind for me. [Hives will be left intact, and the entrance will be formed by the construction of the bottom-board, the same as formerly.—Ed.]

The Northwestern Association, which formerly held such successful conventions at Chicago, is to be revived. Urged by a number of bee-keepers, and indorsed heartily by the editors of the *American Bee Journal* and *Review*, a call has been issued for a convention, Nov. 10 and 11, at the New Briggs House, Chicago. As that is during the fat-stock show, also the horse show, fares will be low, and a good meeting expected. Say—who's coming from Medina? [I might come with some coaxing, but I can not tell positively at this early date whether I can leave then.—Ed.]

"Comb honey was never known to sell as low as it is now, and it is the farmers and small bee-keepers that have ruined the price by selling at the stores at any price they were offered."—*Frisbee, Gleanings, p. 655.* "The farmers and small bee-keepers are our best friends," is the teaching attributed to Bro. Abbott, p. 670. All who have had your markets improved by poor honey thrown on the market at low prices, please hold up your hands. [The way you have placed the two ideas over against each other almost puts Bro. Abbott into the shade; but after our friends get through holding up their hands, I wish Bro. Abbott would stand up and explain more fully why the farmer bee-keeper is his friend.—Ed.]

M. H. Mendleson writes that he practices, with entire success, first putting on extracting supers, then sections. "The darker honey is extracted; by that time your hives are boiling over with bees, and are forced to go into the sections. The brood-apartment is generally crowded with brood." [I have been preaching that thing myself, and I am glad to know that I have such a "big gun" as Mendleson to back me up. My object in using extracting-supers to start was not to get rid of dark honey, but to get the bees *started in supers*. I find that they will go into extracting-supers sooner than into sections; and if they once get into the notion of going above they are more apt to keep on going up, even when the surplus arrangement has been changed to something they do not like quite so well.—Ed.]

A discussion is on in the *American Bee Journal* as to the value of the bee-space. W. C. Gathright thinks where shade is scarce the bee-space protects against the sun. He says, "I once put out some hives facing south, and in almost every one the comb next to the wall of the hive on the west side of the hive melted down. I then turned the hives with the entrance to the east, and had no further trouble. The space between the end-bars and the end of the hives served almost the same purpose as a double-walled hive." [I have watched the discussion myself; and after looking over all the arguments on the other side, I fail to see one good reason why a bee-space should not be used; and on the other hand there are many reasons why it *should* be used. To abandon this bee-space in this day and age would seem to me like going back to the flail to thrash our wheat rather than to use the modern steam thrashing-machines. The most convincing fact to me is that those bee-keepers who use the bee-space produce as much honey per colony right along as the one or two who think they can not use the bee-space; and, besides, there is a heap more comfort in working with the bees and taking off the honey. Why, the point seems to me to be hardly debatable.—ED.]

"FULL OF PROMISE to apiculture" is the idea of breeding bees for longer tongues, according to Prof. Cook, p. 658. But when he says, "It will take long years, hence the necessity of great patience," I think he throws on more cold water than is warranted. Look at Dr. Murdock's bees with worker-cells, some of them as large as drone-cells, and consider the fact of the great inequality in the present length of bees' tongues. Say, Mr. Editor, just you offer for sale as good glossometers as they have in France, or better ones, and a whole lot of us will go to work at once; and instead of "long years" I believe the question could be pretty fully settled in three to five years; and no one would be quicker or gladder to say he was wrong than Prof. Cook. [Somehow I do not enthuse very much over the possibility of getting bees with longer tongues. A good many attempts have been made at it, but practically nothing has been accomplished. Perhaps if an experiment station could take hold of it something might be done.—ED.]

BIOGRAPHY OF DR. JESSE OREN.

Another Banker Bee-keeper.

BY O. O. POPPLETON.

The late Adam Grimm will long be remembered as the "Banker Bee-keeper." It is not generally known that we have another man in our ranks, still alive, who divides honors with Mr. Grimm of having graduated from bee-keeping into banking, but has, I think, a much more interesting and unique personal history.

Dr. Jesse Oren was born Sept. 22, 1824, in York Co., Pa., which locality had been the home of several generations of his ancestors on both sides, some of whom suffered severely during the Revolutionary and early Indian wars.* It would be very interesting to record some of their adventures, but lack of space prevents.

Dr. Oren's early life on his father's rocky Pennsylvania farm laid the sure foundation for his subsequent life of industry, frugality, etc., necessary for the success of his later life. Deciding that he must have a better education than could be had on the farm, he, when 16 years of age, bound himself out to a harness-maker, with the distinct agreement that he was to have a certain amount of schooling; but the agreement not being lived up to, he went first to Lancaster, O., and then to the Plainfield Academy, where the principal took him as scholar, knowing he was dollarless. From here he went to Johnstown, Pa., where he taught a school during the winter of 1842. In the spring he started for Oberlin College; but by chance he was stopped at Richmond, O., where a new college had just been started. Here he remained three years in alternate study and teaching. Some of his experiences during this time were interesting and very characteristic, but space forbids giving them.† Hard study and work had broken down his

DR. JESSE OREN.

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* All his ancestors on both sides were born and reared in York Co., Pa., and owned farms adjoining each other. These farms were near the Susquehanna River—on the south side of the river, opposite Middletown. Just below Middletown are the rapids in the river, and it is considered very dangerous to attempt a passage by any ordinary boat. Middletown is situated at the junction of Sweet Arrow Creek with the river. Jacob Keller had gone across the river, and was attacked and pursued to the mouth of this creek. Ice was thick in both river and creek, and just grinding along prior to closing up for the winter. It seemed to be only a choice as to the manner of dying. Jacob Keller chose death by ice and water rather than to be captured. He rushed in among the ice, succeeding after a time in getting on top of a large cake of it, and went over the falls safely, and landed on an island about three miles below the falls. On this uninhabited island of about five acres of ground he remained nearly three days before the river closed and he was able to cross to the shore on the ice. The island has ever since been called "Keller's Island."

† He remained in Richmond, O., three years, all the time at study. At the end of five months Dr. Lorimer gave him a certificate of character, and sent him to Judge McCullough, who lived at the mouth of Yellow Creek, about three miles from Wellsville, O. Here he obtained a school at good wages, but soon learned that William McCullough, son of the judge (and at the present time superintendent of a railroad, with headquarters at Wellsville, O.), and John and William Hammond (now and since, and during the civil war, John made his figure as an eminent physician) were to commence the study of algebra and geometry. As Mr. Oren had not studied geometry at all, he felt embarrassed, but nevertheless assigned them a lesson, and then went home to study it himself. As his school was but ten miles from Richmond, where it was well known he was unbooked in geometry, and as he felt the situation was a bad one, he determined to fortify himself by always hearing the lesson of the boys without having the book in his hands. In five months the boys passed through six books of Legendre without a miss or a fault. This will be news to Dr. John Hammond should he see this in print.

health, and he was sent home to Pennsylvania under sentence of death from consumption. Fortunately he fell under the care of a very able physician, who treated him for nervous disorder caused by overwork, instead of for consumption, resulting in a cure in a few months.

As a patient he became interested in the study of medicine, and adopted it as a life profession. For the next few years he was engaged in teaching, in obtaining a collegiate and medical education, and in extensive hospital work, finally being graduated as "M. D." at the Penn Medical University, of Philadelphia.

In 1854 he was one of a limited number of young American surgeons who entered the Russian medical service during the Crimean War. For the first few months he served in a large hospital at Backsisaria, some 12 miles north of Sebastopol; afterward in hospital No. 18 at Cherson, until the end of the war. This removal to Cherson was a promotion with much increased pay and privileges, and was by direct order of the Czar himself. Soon after Dr. Oren went on duty he and his superior, a German surgeon, had a controversy on some point of practice, resulting in a bet, and a victory for Dr. Oren. The idea of a young American doctor worsting a veteran German surgeon was too good to keep, and it reached the ears of the Czar, who ordered him given a present of 25 roubles and the above promotion. At the end of his two-years' service in Russia he returned to Philadelphia with $5000 in cash, and within ten days started for Iowa, where he first settled in what is now North Liberty; and in 1858 removed to Laporte City, Blackhawk Co., his present home. Here he practiced his profession, gradually becoming interested in farming, bee-keeping, fine-stock raising, and banking, in all of which he has been peculiarly successful.

About a dozen years ago he concluded to try the South, and, as a result, has spent his winters ever since at Daytona, Fla., becoming interested in the town financially. On account of ill health Dr. Oren has, within the last four or five years, retired from all active business except such as is necessary in looking after his financial interests in the bank and elsewhere. When I visited him at his home about 15 years ago he was living on his 1200-acre farm, fully stocked with Clydesdale horses and shorthorn cattle, his specialties, and an apiary of about 300 colonies. The farm and stock were cared for by hired labor; but the apiary work was all done by himself, wife, and two daughters.

He first became interested in bees in 1858, starting with six colonies which cost him $108. In 1860 he bought from Mr. Mahan the first Italian queen that ever crossed the Mississippi River, for $22.50. In 1861 his apiary numbered 150 colonies, and has varied from 100 to nearly 300 from then until he retired from active work a short time ago.

His specialty was comb honey, and his success in both honey production and wintering was phenomenal, excelling in both these respects any other bee-keeper I was personally acquainted with in Iowa. Many of his methods, both in bee-keeping and stock-raising, were original, and differed widely from any I have seen practiced by any one else, and they were peculiarly successful. His bees earned him much of the money invested in other lines, and in this respect he divides honors with Adam Grimm, and not second honors either.

As a friend I have found him to be such as few men have the power and disposition to be. He in his daily life fully lives up to his ideal. He once said to me in words, "What is the use of a man living in this world if he can't be helping somebody?" His success in this line has been equal to his business success.

Pioneers of improved American bee culture yet alive who antedate Dr. Oren's commencement of the business can probably be counted on the fingers of one hand; and I doubt whether any of them have had as unique, interesting, and successful all-round personal history as he has.

Dr. Oren has been president of the Iowa State Bee-keepers' Society.

Stuart, Fla., Aug. 10.

* * *

HOUSE-APIARY AT NOTRE DAME, IND.

Wintering in a Warm Room; some Interesting Observations.

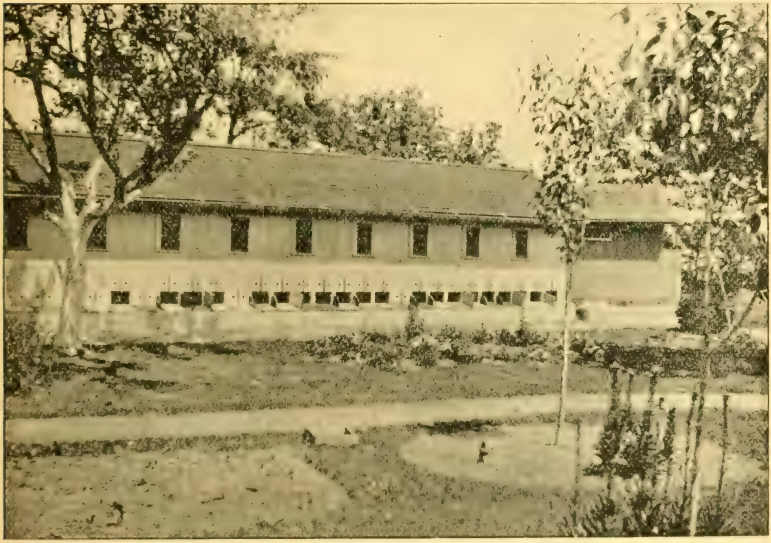
BY JOHN CHRYSOSTOM.

One of the house-apiaries on the grounds of the University of Notre Dame is a frame building, in length about 60 feet, in width about 9, in height about 10 from the floor to the cone of the roof. It is built of matched lumber throughout, being so tightly jointed that mice and such small animals can not get into it. A small platform on the floor, running the length of the building, is about 3 feet wide and 3 inches high, sloping to the front about an inch, so that the moisture which may collect at any time in the hive will readily run out. On this platform are small frames about 2½ inches apart, inserted in the wall, the exact size of the porticos of the hives, against which the portico of the hive fits tightly, forming another portico about 8 inches high, 12 inches wide, and 11 inches deep, thus making a secure place for the bees to sleep warm at night, especially when there is a large quantity of brood and young bees in the hive, which would make it very uncomfortable for the field bees.

All these openings and hives are on one side — the southeast side of the building — as are also the windows, which are swung on hinges as a matter of convenience. The porticos have tight-fitting slides with ventilators, and may be closed and opened at will. This is very convenient on cold bright windy days in spring, or when bees are robbing, or when looking through a hive in early spring or late in the fall, when the slide and all the windows can be closed, in which case there is no trouble from robber bees.

But, how about the noise, and walking on the floor so near the hive? Bees become accustomed to it, and do not mind it.

I never saw a house-apiary, and know not how they are generally built, or what advantages others may find in them; but for me I find it most convenient and satisfactory. I would not keep bees if I had to winter them in cellars and caves. The hives in this house are only about 2½ inches apart, and it is very easy to pack them in chaff or straw if it is ever necessary. My opinion is this, founded on experience: That it would be better to have the house facing east, with plenty of windows on the east and west sides; also have a large window in the south end, the north and south ends being flanked with good windbreaks.



HOUSE-APIARY ON THE GROUNDS OF THE UNIVERSITY, AT NOTRE DAME, IND.

The advantages of this arrangement are that, on windy days, the bees would find a calm atmosphere as soon as they would drop down to the hives, and in early spring the sun shining through the windows and on the roof would raise the temperature in the building, and consequently in the hives, which I think would have a tendency to induce early brood-raising.

But, would not this be an inducement to the bees to fly out on cold bright days? I believe not, when their quarters are comfortable; at least, this has been my experience. I have kept a sixteen-frame colony on the window-sill in my room for the past three years. The window is situated in a southeast angle of the building, affording light and heat from the sun till noon, and on bright days in spring the top of the hive becomes very warm, even on cold days. Besides this source of heat, there is a coil of steam-heating pipes running along the wall under the window, and the temperature of my room is seldom as low as 50 deg., either night or day. In the afternoon it is up to 75 degrees. The bees get their fresh air from under the window-sash. The hive is so warm and comfortable, especially when the north wind blows, that the bees take exercise in the hive, which oftentimes has been a great source of pleasure to me on winter days, watching them through the glass, as the side of the hive next to my writing-table is glass.

Oftentimes in early spring I have seen the bees fly from less comfortable hives when not a bee was to be seen from this particular one. As for funerals and house-cleaning in the spring, this hive is almost exempt. Perhaps not over 200 dead bees could be found in and about this hive the entire winter and spring.

I have seen them work about 6000 flights an hour on first honey or pollen. At night they appear to enjoy the lamplight, which is sometimes very close to their window. But, the noise? Well, they are aroused by the ringing of a large hand-bell every morning at five o'clock, and every hour till nine in the evening, besides vocal and instrumental music three times a day, when a class of fifteen or eighteen young men join in a chorus, which makes quite a racket. Nevertheless, these little creatures continue from day to day their daily work as though they were in the tree-tops in some far-off forest.

[I would somewhat question the wisdom of having too much glass for the purpose of letting the direct rays of the sun shine directly into the house-apiary building. I should fear that, on cold days, when the sun did not shine, the building might be cold; for glass does not begin to afford the protection that some non-conducting substance like wood does. Perhaps the low temperature of one day without sun might be followed by a calm day with plenty of sun. Then the inside of the building would be very comfortably warm, if not hot, and that would possibly make a difference of fifty degrees in temperature. Mr. Salisbury and a few others who are using house-apiaries are, I think, wintering quite successfully without any windows save small glass lights that are closed up by shades.

Your experiment with a colony of bees in a living-room is quite interesting. One would think the warm temperature would excite them too much, and cause them to fly; but very likely they have become accustomed to the warm air and to the noises and all other unusual conditions. We have known of other instances of colonies being kept in a living-room, having an entrance connected with outdoors; but, so far as I can remember, these colonies did not fare very well. Perhaps there are some among our readers who have conducted similar experiments who will let us know about it.—Ed.]

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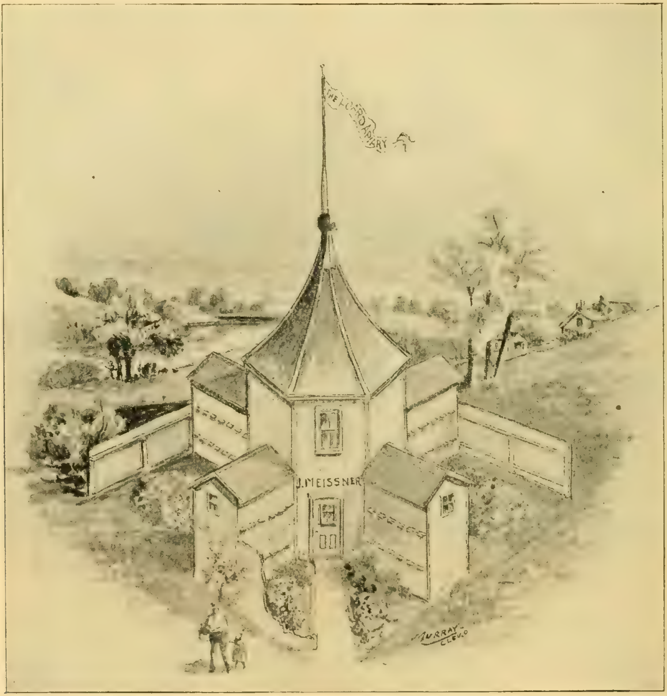
THE "A B C BOOK" HOUSE-APIARY IMPROVED.

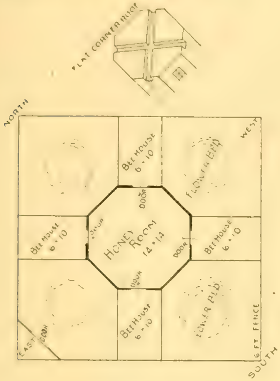
BY JACOB MEISSNER.



MEISSNER'S IMPROVED HOUSE-APIARY.

I noticed in Gleanings that you are going to build a house-apiary to keep thieves out. I send you a sketch of mine. This house does not have to be built at one time. Indeed, I have not finished mine yet. The four small houses, or wings, can be moved anywhere. The central part is of eight pieces — four high ones, and four to fit the top of the roofs of the small houses. The whole structure is bolted together. The flat roof shown in the diagram is best for a movable house. To get into this building, thieves must go through three locks. The whole building holds 96 colonies.

Sheenwater, N. Y., Aug. 9, 1897.



GROUND PLAN.

[From an architectural point of view your house-apiary is very pretty; but from a pocketbook point of view I am afraid it would be out of the reach of the majority of bee-keepers. The present price of honey renders it absolutely necessary, if the bees are to pay all expenses and give a profit besides, that a house-apiary should be built as economically as possible. Mr. F. A. Salisbury has a building about 12 x 60, gable roof, which will hold as many colonies as yours, and which probably cost less than a fourth as much. Still, there may be some located in the cities who are not so much after the profit as they are for the pleasure of bee-keeping. To such a one the house-apiary above will commend itself.—Ed.]

* * *

BEE-KEEPING IN BANANA LAND.

Some Interesting Facts About the Flora.

BY H. G. BURNET.

There is no tract of land in the world, of the same size, that I know of, that has as diversified a climate and soil as this island of Jamaica. This diversity is very pronounced, so that, in a journey of a few miles, one can pass from arid plains to where there is a rainfall of sufficient amount to keep vegetation in luxuriant growth the year through. These conditions are brought about by the peculiar topography of the island, in combination with the northeast trade-winds. The range of high mountains through the center of the island causes most of the rain to fall on the north and central portions, while on the south side there are districts where the rainfall does not exceed ten or twenty inches, and on the mountain-tops and north side it is from 80 to 150 inches a year.

On the dry Liguanea plains on the south sides there is a very interesting honey flora, the most noted being a variety of acacia, locally known as "cashaw," that blooms twice a year—in May, and again in August and September, and that grows luxuriantly all over the dry plains. The honey from this source is thick and white, and of very fine flavor, much like white-clover honey. Then there is the lignum vitæ, logwood, and quite a long list of trees, plants, and vines that yield more or less honey; and, when seasons are favorable, very large yields are obtained—so large, in fact, that it is almost impossible to overstock the range, and large apiaries pay well.

In the dry districts the flows are very distinct, and great skill is needed to keep bees strong at the proper time to catch the full benefit of the yield; for often for weeks bees will get nothing; then the cashaw or logwood blooms suddenly open, and fairly drips with nectar; and the careless bee-keeper will lose nearly all of it while the bees are raising a force strong enough to gather the abundant harvest. So it is often the case that he goes to work and extracts too closely, and his bees starve or abscond, or "the moth" plays havoc, and "bee-keeping doesn't pay." But there are some wide-awake apiarists who have the best modern appliances, and are quietly increasing the number of colonies, and starting out-apiaries, and who will surely reap a well-deserved harvest. In the district about Spanish Town there is complaint that the hundreds of acres being cleared up and planted to bananas—under irrigation—is reducing the flows very materially; but there are large areas still untouched. Cocoanut palms also yield honey, as do nearly all of the palm family.

Leaving the plains, and getting up into the hills, we find a more varied flora; for the rainfall is greater, and, with decent care, bees will never need feeding, as they often do on the dry plains, for there are nectar-yielding plants in bloom all the year round. Logwood, which is found sparingly on the dry plains, here grows with great luxuriance, and is found in nearly all the pastures on the great cattle-ranches—here called "pens"—which abound throughout the island.

About Christmas, bees get more or less honey from a convolvulus-like bloom called "Christmas pop," that stimulates brood-rearing, which is of great value, as it puts the bees in good shape, if properly managed, for the harvest from logwood in January and February, which lasts from four to eight weeks. Oranges abound in many parts of the island, and, where plentiful, give considerable honey, following closely after the logwood.

The list of nectar-yielding plants in the hills is quite a large one, including many large trees as well as small weeds and vines. A good many swarms have escaped to the rocks and many caves that are found throughout the hill country. With the facilities of good roads—none better anywhere—and convenient railway transportation, it is a wonder some of the apiarists on the plains have not moved their bees into the hill country after the cashaw flow has stopped. J. S. Morales, the enterprising secretary of the Jamaica Apicultural Society of Spanish Town, not only handles Root's goods, but rides a bicycle to his out-apiary, and is much in request by a number of beginners in various parts of the island. Friend Morales finds a wheel invaluable in his business, as does the writer; for with the magnificent roads everywhere through the island "it's just fun" to wheel through the lovely and varied tropical scenery.

I again invite A. I. R. to visit this island next winter. He will find many things that will interest him as much as any thing he has seen on any of his travels—immense fields of bananas grown under irrigation; great waterfalls, wonderful medicinal springs, large sugar-plantations, truck-growing under irrigation, great caves, etc., as well as a wealth of tropical vegetation that will be a revelation to him. He can bring his wheel, and ride everywhere, and he will find that he has many friends here as everywhere.

Linstead, Jamaica, Aug. 30.

[Thanks. Will try to send him down one of these winters when it is cold and bleak here, and lovely with you.—Ed.]

SMOKER FUEL.

Some New and Valuable Kinks in Handling Bees.

BY N. E. BOOMHOWER.

About every apiarist has his own whims and ideas; and among them are some who would rather use a thing of their own originating than to use one they knew was better, but decline simply because some one else got it up, and say it is "no good."

I will give a few points that perhaps will do some one some good if he will try it. One of them is, *fuel for the smoker*. We use old phosphate-sacks that have been laid out in the rain, and washed out, or burlap of the same nature, which can be had in almost any quantities at the junk-shops for one-fourth cent a pound. This fuel has been used by a good many, but perhaps not in the same shape we use it. We take a phosphate-sack and roll it up lengthwise as tight as we can handily with the hands; then we take common cotton twine and tie around the rolls about five inches apart, or about the right length to fit in the smoker; then chop up the rolls between the strings with an ax, and so have a very handy piece of fuel that will just fit into the smoker. One bundle will last two or three hours, and make a much nicer smoke than any wood I ever used.

We take sacks and fill them with the bundles, and send one to each apiary, and that will last through the season. The advantage of this fuel is that there are no sparks; and those who have chaff hives will know that this is one good point. Only a short time ago I burned up four chaff hives on account of using wood for fuel. Your smoker is always cool, easily lighted, and I have known a smoker to stay lighted three hours without being touched. In lighting the smoker, take the burnt fuel that was used the last time; and by touching it with a lighted match it will burn like charcoal, thereby saving the time of cutting shavings. The cost is about five cents per hundred colonies per season, and about fifteen minutes' work to prepare it.

W. L. Coggshall, I think, was the first to use fuel in this shape, and you could get him to use no other.

Another useful point is in putting a hook on the smoker—one stamped out of band iron, about ⅞ inch wide and 3 inches long, with one end made sharp, and bent like a fish-hook, so it can be screwed on about the center part of the back of the bellows, and about two inches from the top, where it does not interfere with the hand. This will be found very handy, as, instead of groping around and bending over, or reaching to find a level place where the smoker will stand, you can hang it on the edge of the hive, and be out of your way, and save a good deal of time and annoyance.

Another point we just caught on this season is in driving the bees down in the supers, either in extracting or comb-honey supers, where bee-escapes are not used. This is done by taking hold of one corner of the oilcloth and pulling it loose, just so the opposite corner hangs; and, by blowing smoke from the smoker by the side of the cloth, and flapping the oilcloth up and down quite rapidly, you will be surprised to see how quickly the little fellows will leave and go downstairs. It seems to draw just the amount of smoke required, and it scatters it evenly over the frames, and forces it down in between the combs farther than a smoker will do it, and not so much, and does not get the bees excited. With a little practice a person can nearly clean the supers of bees; and where you extract you hardly need to brush the combs.

West Groton, N. Y.

[Mr. N. E. Boomhower is a son of Frank Boomhower, of Gallupville, N. Y. As I saw Mr. N. E., or Novice, as he is familiarly called, working in one of Mr. Coggshall's apiaries, I can testify to the correctness of every point he makes. It is indeed true that this old gunny-sack smoker-fuel is cheap and lasting, and it gives a good volume of smoke without sparks. I think Mr. C. told me he bought for this purpose old phosphate-sacks. The smell of the phosphate would do no harm, but, on the contrary, would have a more favorable effect on the bees. I do not suppose it would pay ordinarily to buy new burlap for the purpose of making smoker fuel, and yet it might.

The idea of flapping smoke into extracting-supers for the purpose of expelling bees by means of the enamel cloth or quilt is a valuable one. The principle seems to be in causing a partial vacuum in the super. A continuous stream of smoke is poured over the frames. The flapping of the enamel cloth, as explained, causes a suction, driving the smoke further into the super than it can be done with the smoker itself, strange to say. You have probably noticed this, that, while in bed, if the bed-clothes are held fast at one end, and raised up suddenly, it will cause a suction. In the case of the hive the smoke seems to be driven into, or rather sucked into, the super, not by the *downward* flap, but by the sudden uplift of the cloth.

Well, how about the results? I saw young Boomhower drive bees out of super after super; and when he took the combs out to shake or brush, in many cases there was hardly a bee on the combs, so thoroughly did it do its work. I shall have more to say about this when I come to tell about my visit at Mr. Coggshall's; but in the meantime, brethren, try it and see how it works. If you use a flat cover, and no enamel cloths, try the ordinary robber-cloth that Dr. Miller recommended, but have it wet. As soon as the cover is removed, lay this on the frames, then try the flap act, and notice what it will do. Now try to smoke the bees down in the ordinary way with the smoker, in another hive, and I think you will notice the difference as I did at Mr. Coggshall's. Of course, you know Mr. C. does not use a bee-escape. His reasons for not using one I will explain at another time. —ED.]

DOES PURE HONEY CONTAIN ANY CANE SUGAR?

If Not, Can Even a Small Per Cent of it be Detected by Analysis? Chemical Terms.

[Some little time ago I stated editorially that I was under the impression that pure honey was liable to contain a small per cent of cane sugar, and that, when the chemist detected a small amount of it in honey, it should not be construed as evidence that the honey had been adulterated. On page 493, Mr. Selser, of Philadelphia, a chemist, criticised the statement, adding that my mistake doubtless occurred from the fact that I had confounded chemical and commercial terms. "Pure honey," said he, "does not contain any cane sugar, commercially speaking; . . . but there is a very large percentage of sucrose, and sucrose is a chemical term for cane sugar."

Prof. Cook, on page 624, in referring to this article of Mr. Selser's, said he thought it contained several errors, and hoped it might be submitted to Dr. Wiley for review. Following up the matter I wrote to the doctor, sending him a marked copy of the article in question, and the following is his reply:—ED.]

U. S. DEPARTMENT OF AGRICULTURE,
DIVISION OF CHEMISTRY,
WASHINGTON, D. C., Aug. 30, 1897.

The A. I. Root Co., Medina, Ohio:

Gentlemen:—I take pleasure in complying with your request of the 21st instant, in respect to the statements in the article on page 493 of GLEANINGS.

The subject under discussion is hardly a matter for argument, because it is simply a question of the use of terms. The expression "cane sugar" is used constantly by chemists as a synonym for sucrose, although I do not believe that sucrose is used synonymously with cane sugar by the commercial world. In commerce, cane sugar is simply sugar made from sugar cane, as beet sugar is sugar made from beets, and maple sugar, sugar made from the maple. Chemically these sugars are all identical, and are spoken of indiscriminately by chemists as cane sugar or sucrose.

The sugars which are present in a genuine honey are almost exclusively cane sugar, or sucrose, and invert sugar, which is made by the inversion of cane sugar. It is probably true that the original sugar of nectar is almost exclusively cane sugar, which is inverted either by the acid juices of the plant itself or by the digestive organism of the bee. In ordinary honey, this inversion is almost completed, and very little cane sugar or sucrose remains, almost the whole of the sugar being invert sugar that is composed of about equal portions of dextrose and levulose.

It does not appear to me that the criticism of your correspondent, Mr. Selser, is well founded; but the character of his statements does not quite corroborate his claim of being a graduate of a special course in analytical chemistry. It is not quite in harmony with a scientific spirit to state that "there is not one per cent of cane or common sugar in pure honey. In this statement I defy contradiction."

I do not claim to be a honey specialist, and it is so long since I graduated in chemistry that it has ceased to be a matter of gratification to me to remember the date. I have, however, never been so certain of any position that I may have taken in scientific matters as to boldly proclaim that I defied contradiction. In point of fact, the sugars which are present in honey are exactly the same as the sugars of commerce; viz., sucrose, or cane sugar; dextrose, or right-hand sugar; and levulose, or left-hand sugar. It would require a great many statements from Mr. Selser to alter this fact, but still it may be easily contradicted.

Respectfully,
H. W. WILEY,
Chief of Division.

[After receiving the foregoing I sent it to Mr. Selser for further review, and he replies as follows:—ED.]

The article you first published, the basis of which was taken from "Prof. Wiley's Book on Honey Adulterations," as well as the present article from Prof. Wiley, is not a matter for discussion between the two classes—scientist and laity—and as such is very misleading. I do not contradict a word of Prof. Wiley's paper; from a scientific standpoint it is *absolutely correct*, and I desire to state that my words defying contradiction were addressed to the reader of GLEANINGS — the honey-producer. I desired to make it very emphatic, that, if he placed one to five per cent of commercial sugar in the honey, it could be detected by analysis; and your statement that "five per cent of commercial sugar in honey did not prove that it was adulterated" I felt was an error that might result in terrible consequences. In proof of what I say, I make the following offer to the readers of GLEANINGS:

Mail me five samples, say 3 ounces each, of honey; let four of them be pure, and one adulterated with five per cent of commercial sugar; number each one. If I do not detect the one that is adulterated I will pay to the sender $10.00; if I do detect the five per cent of commercial sugar, he is to pay me $5.00, or the price of my analysis, $1.00 a sample.

Now, scientifically, turn to the "Government Book on Adulteration of Honey," 1892, page 791, the top of page showing sample No.

SOME OF THE PROMINENT BEE-KEEPERS WHO ATTENDED THE BUFFALO CONVENTION—SEE EDITORIAL.

41 of pure honey to contain 8 per cent of sucrose and 65 per cent of reducing sugar. This sample was proven to be positively pure. Now, Prof. Wiley uses the same word for sucrose as cane sugar, and also says the words are not used synonymously in the commercial world. Here is where the line must be drawn, and I repeat the professor's words: "It is simply a question of terms."

Now practically. In my visit to a large honey-producer I mentioned the fact that my State, Pennsylvania, had a law that, if the smallest per cent of commercial sugar was detected in honey, there was a fine of $50.00 for every store selling it. He said that, in the fall, he fed a lot of granulated sugar. Most of it had been consumed by the bees, and but a very small per cent remained in the combs. When fruit-bloom commenced he thought it so small that he paid no attention to it, and extracted it with the other frames in the first extracting. This man is a good man, and I am sure he meant to do no harm, as he had seen the statement that all pure honey contained a small per cent of cane sugar.

Had any party from Pennsylvania bought his honey and put it in bottles, marking it "Pure," and sold it to twenty stores, it would have cost the bottler $1000, and ruined him for life. Will not Prof. Wiley pardon my strong words in the light of these facts?

Philadelphia, Pa. W. A. SELSER.

[I am glad to note that there is no real disagreement between Mr. Selser and Dr. Wiley; and I am glad to note, also, that Mr. S. is perfectly ready to prove his faith by his works; so, then, let the samples go in to him. We will gladly give place to the results in these columns. Send him not only sugared samples but glucosed samples; and when he sends you the report, mail a copy of it to us, together with a statement of just how the honey was originally "doctored."—ED.]

THE DEEP-CELL FOUNDATION.

Conditions Under Which Bees Build Heavier Comb.

BY F. A. SNELL.

I have eagerly read every thing that has appeared in GLEANINGS on the above subject, inasmuch as I think it a very important one. If it proves what is hoped, it will have an important bearing on bee-keeping in the future, so it seems to me. The importance of partially drawn combs, especially in the central sections of each super put on at the opening of the honey harvest, is a conceded fact with most bee-keepers. The drawn foundation will, if in no other way objectionable, come into general use in the sections. I think shallower cells may be preferred by many after the first super for each colony at the opening of the harvest. The reports given of trials made near the close of the honey-flow or during a light flow, of heavy combs, or those having more wax than some natural combs have, could hardly have been expected to be otherwise. Every close-observing bee-keeper has noticed, no doubt, that at different times the thickness of combs varies much, depending wholly, so far as I have observed for thirty years, upon the honey-flow at the time the comb is built. You mention this fact; and you will remember that I in a former article took considerable space in calling the attention of apiarists to the matter of thickness of combs, stating when the conditions and honey-flow were right for the building of very light combs, and the reverse.

My experience with the deep-cell foundation is very limited. I received a sample last spring; and when the bees were well at storing surplus I put it in a section and placed it next the glass side of the super. I watched the bees closely. Work was commenced on it at once, and the cells drawn out and finished. The weight of the comb is all that I could ask for, and this one test impressed me very favorably. Next season I hope to give it quite a thorough trial, and I hope all who have done so this season may give their experience through our journals. Even if the new foundation be discarded in a few years, the effort will not have been in vain. Much useful knowledge will have been gained. I think it has come to stay, and prove of value to the bee-keeping fraternity.

Milledgeville, Ill.

DRAWN COMBS AND DRAWN FOUNDATION.

Friend Root:—Referring to my article on page 560, August 1, regarding drawn combs, I was not as clear as I should have been; I therefore explain that the drawn combs I used, and which did not give this season as good satisfaction as full sheets of foundation, were leveled down by breaking the cells, in all cases where they were over ¼ inch in depth; possibly some were left deeper than that. What I said would not reflect on the new drawn foundation, which, I believe, will do all that is claimed for it, and the finished product will be first class in every respect. This I hope to demonstrate next year by actual experience. But unfinished sections at the close of the season are like many other things. We shall have them whether we like them or not.

H. LATHROP.

Browntown, Wis., Aug. 14.

BEES ACCEPTED IT AT ONCE.

I consider your drawn foundation a marvel of workmanship. Bees accepted it at once. I have not yet sampled the honey, but I have no doubt it will be as tender as natural comb, if not superior to it. C. S. HARRIS.

Holly Hill, Fla., Aug. 30.

THE NEW DEEP-CELL FOUNDATION AHEAD.

I have tested the drawn foundation you sent me this summer as follows: I put the pieces, which were in size 2x4, one in each section, which made them half full, and put them together in one corner of the surplus-box. As the bees usually begin to fill the sections in the center of the surplus-box, they accepted your drawn foundation at once, and extended the comb down to the bottom of the section, and built or stuck it all around, the same as any other foundation. For my part I should prefer the sections only half full of the raised foundation, as I think it is just as good as having them filled, thereby saving expense. The principal feature of it is to get bees started to build; after that, there will be no trouble, and your new process of manufactured comb starts them *sure*. The only difficult part I experience is in fastening them to the section.

Bloomdale, O., Sept. 7. M. N. SIMON.

THE DEEP-CELL FOUNDATION A SUCCESS IN EVERY WAY.

The 20 combs of drawn foundation were all finished up nicely, and their eating qualities can not be surpassed. This was a very poor season to test it by the side of common foundation, as bees would start on any sheet of wax. Some years we know it is hard to start them, even on the best foundation. I expect to use the drawn foundation another season entirely. J. C. WHEELER.

Plano, Ill.

UNFAVORABLE FOR NEW DRAWN FOUNDATION.

The willow-herb was a failure in this locality, so I could not give the new drawn foundation a test from that source. A few sections containing common foundation have been filled and finished from fall flowers, but none containing new drawn foundation have been finished. The third day after putting on the supers the common foundation was drawn out farther than the new drawn foundation clear down to the base. R. E. ASHCRAFT.

Woodville, Mich., Sept. 3.

[It is the exact truth that we want. If there are more reports of a like character, let them come in.—ED.]

OCCURRING THOUGHTS.

BY J. W. SOUTHWOOD.

Mr. Editor:—On page 527 you say, "It does little if any good to put any thing on a bee-sting." Try ma-le-na. It not only allays the pain if applied soon, but by its pleasant smell destroys the odor of the sting and thus prevents the bees from becoming angered. It is found in drugstores generally, and costs 10 cts. per box. It is a good salve for many purposes. It is manufactured at Warrior's Mark, Pa. [The pain is very brief at most, and my way is to grin and bear it. The pain would be over before I could get the stuff on. To destroy the odor I blow smoke on the wound.—ED.]

On page 533 of *American Bee Journal*, Mr. A. B. Mellen says he prefers piling up the supers five or six high with a cone escape on top, rather than use a Porter bee-escape, as it saves one handling. I have never practiced that method, but have seen it practiced, and believe I can free the supers with less work and less liability of destroying the capping by the use of the Porter escape. I think it a grand invention.

One difference between *pure* blood and thoroughbred is that pure blood is barely susceptible of improvement, while thoroughbred can be greartly improved. G. M. Doolittle, on pages 500 and 501, points out this fact relative to the black bees as compared with the Italians. While the latter have been, and may yet be, greatly improved, the black or Germans are barely susceptible of improvement.

When from some cause queens are not clipped, many times the queen may be caged as she issues from the hive. Prepare a roomy cage; and if the hive has a full entrance, prepare an entrance-block; and, if near at hand, pass to the hive while the swarm is issuing, and lessen the size of entrance by moving the entrance-block endwise at one side of entrance so the eye can easily see the full width; and as the queen comes out cage her by putting a cage over her. She usually comes out quite reluctantly toward the last, and sometimes comes only to the entrance, and then goes back. In such cases I open the hive and take her out, as she is quite easily found. I frequently take queens of after-swarms in this way.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE. BORODINO, N.Y.

ITALIANS VS. BLACKS FOR WINTERING; FEEDING; UNIFORMITY IN HIVES; WIRING FRAMES; METAL-CORNERED FRAMES.

A correspondent sends in a number of questions; and as I do not think it best to take as much space in answering them as I usually do to each question, I have thought best to number them and answer by number.

1. Do you think that Italian bees stand the cold winters we have in 43° north latitude as well as the black or German bees?

Ans.—It is said by some that they do not; and I used to believe that what the "some" said was the truth; but that was before I made any careful tests in the matter. Some eighteen or twenty years ago I began to look carefully into the matter of wintering; and during the experience of all of these years since, I have become convinced that there is little if any difference in favor of either along this line. Some winters the blacks seem to do the better; in others, the Italians come out ahead.

2. A neighbor has given me some bees in box hives, because he thinks they have not stores enough to winter on. How can I feed these bees?

Ans.—This is very easily done at this time of the year by boring a hole in the top of the hive, if there is none already there, and placing a feeder on top, covering all with a hood, box, half-bushel, or something of the kind. If you do not have a feeder, a suitable-sized tin basin or pan will answer every purpose for such feeding. After having the feed in the pan, pull up some rather short grass and scatter it over the top of the feed for a float, to keep the bees from drowning, and set up a piece of section in such a way that the bees can climb on it over to the feed. Be sure that all cracks under and about your cover are bee-tight, otherwise you may have a bad time with robbers.

3. Can I not put off feeding till winter just as well?

Ans.—No! a thousand times *no!* When will people learn not to put off the feeding of bees till cold weather comes? October 1st to 10th is quite late enough to feed bees; but should it so happen, from sickness or otherwise, that the bees are destitute of food when winter sets in, take the box hives to the cellar, turn them bottom side up, and every day or two sprinkle a few tablespoonfuls of honey over the bees and combs, having the honey a little more than blood-warm. If they are a large colony, or seem to require more, use as much as a half-teacupful each time. In this way bees have been wintered successfully; but the chances are that a loss of feed and bees will be the result.

4. Would it do to leave them till winter, and then set them in a warm room under netting, to feed?

Ans.—No, I should not like to try that. From my experience in the past, such a procedure would cause them to become uneasy and to go to breeding, thus consuming large quantities of food, which would in all probability cause diarrhea, resulting in death. There is a chance for such occurring where fed in the cellar, but not as much as in the warm room.

5. Could these bees be wintered in a warm room?

Ans.—The chance for this would be very slight indeed, although such has been tried with success in a few instances, I believe. The cellar is a much better place, and requires much less labor and care, hence I see no reason for desiring to try such risky experiments. [See page 697.—Ed.]

6. I am about to make some new hives. Is there any advantage in both upper and lower story being just alike, so they can be used together or separately? If so, how would you arrange the entrance?

Ans.—There are many advantages in having all hives in use of the same size, and several in having both stories just alike. In making, you can get along with much less bother; you can use the upper story for the same purpose you do the lower, at any time you so desire, which will be quite often; and one, two, three, or more will fit together like clockwork in tiering up, without any outside shell to cover them. By making the entrance in the bottom-board where it should always be, this part need not affect the hive at all. If made right, you can enlarge or contract the same by simply moving the hive a little backward and forward on the bottom-board, thus saving any entrance-blocks.

7. Would you advise me to buy wired frames by the hundred, filled with foundation?

Ans.—That depends upon conditions. If you are to work your apiary for extracted honey it might be the better plan; and if you work it for comb honey, and have not the time to look after the combs properly when being built; or if your time is very valuable, it may be the better way. But with the average bee-keeper I think it will pay fully as well, especially where the sections are filled with thin foundation, to use only starters of comb or comb foundation in the brood-frames, say from ¾ of an inch to an inch wide, as it will to fill the frames full of the same, to say nothing about the saving of money and time. It is the opinion of several of the best bee-keepers of to-day, that as much or more comb honey can be secured by allowing the bees to build their combs in the brood-frames, using starters as above, than by any other mode of procedure. Certainly comb honey of the most fancy make can be produced in this way, and the difference in selling price between this and that built by a colony having old black combs below, where much of the old wax gets into the capping of the section honey, is an item worth looking after, but one which has no bearing on the foundation question, however.

8. A neighbor of mine is using metal-cornered frames. Are they enough better than all-wood frames to pay the difference in price and the extra trouble of making?

Ans.—I tried the metal-cornered frames several years ago, and did not like them well enough to use any more of them. The trouble I found with them was that, in carrying the hive from one place to another, they would move about so, even after the combs were built, that the frames would require respacing after every time moving, else a lot of bad combs was the result. Then in handling, the corners would get bent unless care was used, so they would not hang true in the hive; and sometimes the fingers would get cut. I wonder if the Roots use them now. [A. I. R. used to like them (perhaps he does now), but there are none in use in our apiary now; in fact, we do not even offer them for sale. They were displaced in our apiary by self-spacing frames, which we prefer.—Ed.]

Heads of Grain, FROM DIFFERENT FIELDS.

PREDICTING THE HONEY-CROP PREMATURELY.

Mr. Editor:—I've come to the conclusion that I do not want to report the honey crop. It is usually much spotted; that is, there may be a good flow of honey in this locality, and only a few miles distant a failure. If I report a good crop, it lowers the price. If I report a failure, only a short distance away there may be a good crop. Those who have honey to sell, seeing my report of a failure, ship in here, injuring the market for those who live near.

When there is a good flow for a day or two, some producers write to the periodicals, "Tremendous honey-flow!" and before it reaches its destination, bees may not be making a living. This year a man came for sections, saying that he never saw honey coming so fast. We ordered them for him, and they remained here one month, and I doubt if he ever opened them.

Some newspapers report a big yield of corn, which is far from the truth. It didn't ear well, neither did tomatoes set. The best crop in this locality was blackberries. It is report- that a man dug his potatoes, dropping them into a jug, and after working all day it was not full. MRS. L. HARRISON.

Peoria, Ill.

[See editorial on this subject, page 670.—ED.]

DISCOURAGING FOR FLORIDA.

You may announce that the present season has given us not one pound of surplus honey in this "neck of the woods." This is the most signal failure we have ever known all along Florida's East Coast. As I have given you some fine records from here I will not shrink from recording this surprising failure. Except for the killing of the mangrove in '95, I do not see how we could have had a season like the present. By next season we shall get honey from that source again.

Hawks Park, Fla., Aug. 27. W. S. HART.

THE BEAR AND THE BEES; THE FATE OF THE BEAR.

We never had any bee-hives kicked over by horses or sheep, but we had two kicked over last night by a bear, and the honey and brood eaten out of one. She was scared away three times, and came back the fourth time, all in five hours. I twice drove her away with two Winchesters; the last time I put a hole through her jugular. This was my first chance at her. I was away when she came first, and my wife shot at her. Mrs. Bear was a dandy, and weighed 400 lbs. I shall take her hide to the tannery to-day, and will make a rug of it. She was killed at 11 P. M. After bleeding ten minutes she got up and came at me as I went to her with a light. F. T. HALL.

Barron, Wis., Sept. 3.

A "SENSITIVE" HONEY-PLANT.

Bees are now working lively on smartweed, corn-top, goldenrod, and other plants, and another very pretty plant with yellow flowers that is quite sensitive to the touch. I do not know the name of it, but will inclose a sample. The leaves are always facing in the direction of the sun. Some have clusters of the flowers for ornaments in their dooryard.

Fairbury, Neb., Aug. 15. O. C. BURCH.

[The plant sent belongs to the family *Leguminosæ*, or pulse. This particular one is *Caesalpinia*, but a different species from *Poinciana*. The plant is nearly related to the well-known Mollie Heath honey-plant. It resembles the true sensitive plant of the florists, and it is closely related to the beautiful acacia of California and Florida. These plants are so exceedingly handsome I would advise you to save the seed and offer it to bee-keepers. If it is hardy in Nebraska it will probably make a beautiful dooryard plant throughout the whole North. I should be glad of a small packet of seeds myself.—A. I. R.]

LIMITING THE QUEEN'S LAYING CAPACITY BY THE USE OF PERFORATED ZINC.

I notice in a late issue of your journal that you object to caging or taking out queens during a honey-flow, "as the bees sulk too much." I have not tried it, only as a colony happened to be queenless, or was made so in the operations of queen-rearing. I think you are correct, but it has occurred to me that that difficulty might be overcome by caging the queen on one comb in a cage made of perforated zinc, so that the bees could have full access to her and she could lay to a limited extent on the one comb only, while the rest of the brood-nest is being emptied of brood, and being refilled with surplus for extracting.

Estero, Fla., Sept. 3. J. S. SARGENT.

[The plan you speak of has been tried, and a few years ago it was thought it might be a big thing; but we scarcely hear of it now. One trouble was that, when the queen failed to raise the usual amount of brood, through no fault of her own, the bees proceeded to supersede her. In short, this contracting the queen's room induces a condition of discontent on the part of the bees, and of course they fail to do their best work.—ED.]

THE DANZY HIVE.

I have put one swarm of Italians into a Danzy hive. They have completely filled the brood-nest with absolutely straight combs, with only starters, and finished the super of 32 sections with the nicest white honey I have ever had, and all in exactly two weeks from the day I swarmed them. I like the mechanism of the Danzy. There was not a burr-comb to be seen when I took off the sections above noted, this week.

I suspect all will have beautiful clover comb this year; but those tall sections of thin beautiful clover honey are certainly enough to bring out a hearty interjection.

Indianapolis, Ind. T. C. POTTER.

WHITE CLOVER; GROWING AND GATHERING THE SEED, ETC.

Never seeing any thing in your publication about gathering white-clover seed, we make inquiry as to what method is used for cultivating and gathering it. JOHN COLEMAN.

Altoona, Pa., Aug. 23.

[I shall have to confess that I have never heard of cultivating white clover. Of course, we sell the seed of the white Dutch clover, which is pretty much the same thing, and this, I believe, is generally sown the same as alsike or red clover; and my impression is the seed is harvested in much the same way, as it has a good deal shorter blossoms, and nearer the ground than the alsike. There may be, however, some modification in the way of getting the seed crop. As there are several among our readers who have grown and sold us the seed of white Dutch clover, will they kindly answer the above?—A. I. R.]

BEES HANGING OUT.

In Gleanings for July 15 I see on page 531 the question is asked, "What is the cause of bees hanging out?" I think the bees become damp for want of a little upward ventilation; and I find by putting a wedge under the cover at the rear end so as to give the bees a little air-current during the extremely hot weather, and taking out the wedge when the extreme heat is over, and letting the rear end of the cover down again, the bees work right along, and there is very little loafing. I use a wedge ¼ inch thick. Wm. H. Eagerty.

Cuba, Kan., Aug. 6.

[Friend E., I think you are right about the bees; in fact, substantially the same treatment has been recommended in Gleanings, and found to be successful, if I am correct.—A. I. R.]

SWEET CLOVER.

I send you an old number of *Clover Leaf*. It contains an article on sweet clover, which struck me as being a very able one.

Sweet clover has gained a foothold along the Cuyahoga River in Independence, next township to Bedford west. We notice good results from an apiary that father has located there. I have saved and fed the fine hay, and the horses eat it with a relish. I believe it to be an excellent forage-plant.

Bedford, O., Sept. 15. Edson Hains.

[The article from *Clover Leaf* is certainly very full and instructive. We make a brief extract from it as follows: — Ed.]

General S. D. Lee, President of the Mississippi Agricultural and Mechanical College, in a letter to this office, says, "What was the poorest part of my plantation six years ago is now the richest from the use of melilotus, and the hay is, in my judgment, the superior of red clover for stock."

SHEEP IN AN APIARY.

In the last number of Gleanings I read what you have to say about letting sheep run in the apiary to keep the grass down. But there is a surprise in store for you if you ever try the thing in your yard. The sheep will strip your Concords of the last leaf first before they go at the grass, and they will climb on top of the hives in order to get at the last leaf. Carl Vollmer.

Absarokee, Mont., Aug. 14.

[Very likely sheep wouldn't do in our yard, on account of the grapevines. There are no grapevines in Burt's yard.—Ed.]

SUCCESS OF THE PETTIT SYSTEM.

The pleasure I find in keeping up to the last improvement caused me to try Mr. Pettit's comb-honey system. To have a fair trial I took 15 powerful colonies, which were divided into 3 parts. No. 1 had its hives raised with wedges ⅞ to 0; No. 2 received only a ⅜ block, and No. 3 nothing, resting on the bottom-board. In each case I found all the outside surface of the two rows of sections next to the supers nicely finished; no difference could be noticed. Due attention has also been paid to the dividers. A part has received 5 cleats, another 3, and the third 2. These last turned out to be just as good as the first ones.

In conclusion, until better improvement is at hand I shall do away with wedges, and use dividers with only 2 cleats, one at each end. Francois Benoit.

Notre Dame des Neiges, Can.

FLIGHT OF BEES IN WINDY LOCATIONS.

I should be glad if you could get some practical bee-keepers, who have had experience in windy portions of the Pacific coast, to answer the following question, and let me know through Gleanings or otherwise: How far will bees fly in windy portions of the Pacific coast, and do well gathering surplus honey? Will they gather as much honey if they have to fly from two to four miles as they would if they had to fly only half of that distance?

Thebe, Cal., July 26. Nicholas Spargo.

[Will some one on the windy coast please answer?—Ed.]

SMALLER CROP IN YORK STATE.

My honey crop, as nearly as I can judge, will be about one-third less than last season; bees have not made much if any surplus since the first week in July. I give it as my opinion that this part of the State (owing to basswood not yielding honey) will be very much shorter than last season. I am selling in my home market at the same price as last year; viz., 10 to 13 cts. for comb per lb. E. J. Haight.

Rock Valley, N. Y., Aug. 5.

FAIR CROP IN IOWA.

A fair crop (not extra) of No. 1 white-clover honey. Basswood was nearly a total failure. Bees are gathering honey enough to keep up brood-rearing at present. Whether or not we are to have a fall flow of honey we are not advised, as we have not heard from our honey-prophet lately. O. B. Barrows.

Marshalltown, Ia., Aug. 4.

GOOD HONEY CROP IN UTAH.

A good honey crop was raised in this section, but no sales to date. I am doing very well selling to the local market in small packages. Reading those articles in Gleanings, on making home markets, has greatly interested and assisted me in this line. A. B. Thomas.

Payson, Utah, Sept. 6.

RECIPE FOR HONEY APPLE-BUTTER.

One gallon good cooking apples; one quart honey; one quart honey vinegar; one heaping teaspoonful ground cinnamon. Cook several hours, stirring often to prevent burning. If the vinegar is very strong, use part water.

Loveland, Colo. Mrs. R. C. Aikin.

"THE HONEY-BEE."

Dear Mr. Editor: — Some time since I presented a friend of mine with some honey. In response I received the inclosed verses. I take the liberty and pleasure of sending them to you for publication. I sincerely trust it will be your decision to publish them.

North Street, Mich. Jas. T. Reid.

[With the greatest of pleasure. The lines are good—very good.—Ed.]

THE HONEY-BEE.

By Rev. Volney M. Simons.

The bee! She's in and out,
And flits and flies about;
She darts on rapid wings,
And buzzes, bores, and sings
Among the beds of flowers
And in the beauteous bowers,
In soft and sunny nooks,
And by the purling brooks,
In many a quiet spot
By us o'erlooked, forgot—
The honey-bee is there
And here and everywhere,
A making honey.

Unlike ourselves, unschooled,
The bee is never fooled.
She sucks the blooming rose,
And well her instinct knows
She'll get, by her own skill,
Of the sweet rose her fill.
The fragrant lily-beds,
A thousand thousand heads,
Their richest, rarest store
Yield freely to her bore.
In stills, the plans her own,
By alchemy unknown,
With mingled suns and dews,
Untaught of us, she brews
Delicious honey.

Who taught the bee, you ask,
The skill for her queer task?
Who gave her the high art
To fashion every part,
And, forming cell on cell,
Build all so strong and well?
Who told her how to sip
The nectar with her lip?
In garden and in field
To find the sweets they yield?
Who gave her the strange power,
The alchemistic dower?
Who gave the pretty bee
Her power of chemistry?
Who showed her how to take
A thousand sweets, and make
Delicious honey?

A moment, let us see
This busy beauteous bee.
Behold her and her comb,
A self-constructed home.
Each single rounded cell
Is builded strong and well,
While all the solid walls
Rival old St. Paul's.
Unschooled, the little bee
Excels yourself and me;
Without mistake or flaw,
By instinct's certain law
She builds, and, building, shows
How much she really knows,
In hives and barns and attics,
Of simple mathematics.
With never fuss nor fret,
She works for what we get—
Delicious honey.

THE NEED OF GOOD QUEENS IN JAMAICA.

If any country requires better queens than another, it is Jamaica. Why? Well, our honey-flow is never as heavy as with you in the States, but it is continuous for, say, seven months, and all that time the queen is hard at work keeping up egg-laying. A queen is old here at twelve months of age.

Jamaica Bee-supply Co.

Mandeville, Jamaica, Aug. 23.

BEGINNER'S QUESTION

BY E. R. ROOT.

J. H. B., Utah.—Young larvæ having their heads wrong end to in the cells is very unusual. We would advise you to change queens.

W. W., Mass.—The insect that you send us is what is known as the "robber-fly," *Asilus Missouriensis*. It is common in the South, but is very rarely seen in the North. While it preys upon bees to some extent it does no great damage. It also destroys thousands of noxious insects, and it is possible that the good it does more than overbalances the harm that it does to bee-keepers.

J. M., Wis.—There are two ways in which you can winter your bees — out of doors and indoors. If you winter outside, the spaces in your double-walled hives should be packed with sawdust, planer-shavings, or some porous material. In the absence of any thing else, dry leaves packed pretty solid will do nicely. For directions in regard to wintering, see page 34 of our catalog, and also the subject of "Wintering," in our A B C of Bee Culture.

C. S., N. Y.—In regard to the microscope, and slides showing bees, I am now a little rusty on the subject, not having done any thing at it for some twelve or fifteen years; but I think there is no question but that, for the money, you can get altogether the best microscope from the Bausch & Lomb Optical Co., Rochester, N. Y. Their microscopes are well made, and the lenses are fine. Send for their catalog. With regard to slides showing bees, I do not know to whom to refer you. I have a very choice collection of my own that I made, but which I should not like to part with, as I sometimes wish to show them to bee-keeping friends who call here. Regarding the price of microscopes, I do not believe you can get a really good one for less than $15 or $20. The more money you pay, the better the instrument.

C. K., Texas.—The amount of sulphuric acid to be used in refining wax varies with the quality of the wax. If it is dark and dirty, use about a pint to two or three pails of water. If it is fairly clean, and needs only to be of a lemon yellow, a very little acid will answer. A tablespoonful to a pail of water might be sufficient. You may have to "cut and try" until you get about the right proportion. It is desirable to use as little acid as possible to secure the result; then the melting tank or barrel should be allowed to stand, covered with carpets or old cloths for a few hours before the wax is drawn off. If it is a barrel it would be more practicable, probably, to dip it off from the top. Before dipping, the wax should be cool enough to form quite a scum on top. When it is allowed to stand thus, the impurities go with the sulphuric acid, and settle out of the way by reason of their greater specific gravity.

Editorial

SOMEBODY has been calling Dr. Miller a liar. I do not believe he believes he is one, neither does any one else unless it is the fellow who gave him that mild appellation. Take it all in all, I believe I would rather have a man call me a harsh name that my friends all know doesn't fit than to fling mild insinuations at me that border pretty closely on the truth.

A PAPER by the Hon. R. L. Taylor, of Lapeer, Mich., formerly experimenter for the Michigan State Apiary, on the relation of bees to horticulture, was read by the president, Mr. Taylor being absent. In this paper he touched upon the subject of spraying and the pollenization of fruit-blossoms by bees. It was one of the ablest and best papers that was ever read on that subject; and if no one has any objections I propose having it put in the form of a leaflet for general distribution among farmers and fruit-growers. I hope to present it to our readers a little later on.

A FEW days ago we had a pleasant visit from the editor of the *Pacific Bee Journal*, Mr. B. S. K. Bennett. Having been through a hard rush of business publishing and editing the bee-journal, and conducting the supply-business, at Los Angles, Cal., he found the need of a rest, and accordingly had been taking a sojourn of two months in the East, among friends and relatives. As previously announced, he attended the Buffalo convention, and went from there on eastward, and finally in his circle landed here at the Home of the Honey-bees. He was just on his way back to the Pacific coast, and left Medina for a bee-line to his home. Mr. Bennett is only 24 years old, but has considerable business sagacity and push. As editor of a bee-journal and as a short editorial paragrapher he has shown no mean ability. GLEANINGS wishes him success.

BEE-KEEPERS' PICNICS AND GOOD COOKS.

A BEE-KEEPERS' picnic is quite a common social affair in York State. I have attended several of them myself. The last issue of the *Amer. Bee Jour.* refers to one held recently at Freeville, and which I attended. It seems that there are several counties in York State that have county bee-keepers' associations that meet at least once a year. It is the custom to call in some outsider to address the association, after which there is a general discussion and question-box work. This is either followed or preceded by a first-class picnic dinner. I said "first-class," and I meant it, for those York State women do know how to cook. I remember that the president of the Seneca Co. Bee-keepers' Association, Mr. Fred S. Emens, at the last meeting at Elm Beech Park, was asked what he thought of the Seneca Co. cooks. I couldn't see the "point," notwithstanding every one laughed. Noticing my blank silence, some one whispered in my ear that the president was a single man, and that there were also some "good-looking single cooks" there that day. My eyes involuntarily wandered from good-looking Fred to the aforesaid prepossessing cooks, and I said to myself, "Yes, why not —— ?"

BEES LOOSE IN THE POSTOFFICE IN NEW YORK CITY.

ALONG the fore part of last month appeared an item in the *World*, of New York, to the effect that some bees had caused a panic in the New York postoffice. It seems some ignoramus of a bee-keeper had put up a lot of bees in a flimsy package that leaked, and the bees got loose in the mail-sack. When the clerks in the New York office (probably the most important one in the United States) attempted to open the sack, there was a "panic;" and the *World* for Sept. 8 gives an account of it as follows:

> The clerks who sort Uncle Sam's mail in the big granite Federal Building had the liveliest sort of a time for an hour or two last Saturday night.
>
> Along about midnight, when the work is the heaviest, and van-load after van-load of mail-matter is dumped in the postoffice, to be sorted by the army of clerks, a porter flopped a big leather pouch on a "form," as the sorting-tables are called, and proceeded to open it.
>
> As he slipped the leather strap through the staples and pulled open the mouth of the pouch he heard a sound he had never noticed before to proceed from a mail-bag. It was like the humming of the summer breeze through the tree-tops.
>
> "That sounds like mosquitoes," said the porter, wh lives in Hackensack in the winter season; but he backed away from the pouch and called a fellow-porter's attention to it.
>
> The two made a cautious investigation. The sound had ceased, however, and one of the porters ran his hand inside the pouch and felt around for about two seconds. Then he let out a yell that alarmed the roomful of clerks, and danced about the sorting-table shaking his hand violently.
>
> "Take 'em off!" he yelled, and he tried to brush something from his hand.
>
> "What's the matter, Bill?" asked his friend.
>
> "Bees, that's what! There's a million of 'em in that bag."
>
> The superintendent was called, and a council of war was held. It was decided that, bees or no bees, that bag of mail had to be sorted, and volunteers were called for.
>
> After considerable hanging back, two brave fellows grabbed the pouch and emptied its contents on the "form."
>
> As the letters and packages poured out on the table a swarm of healthy "workers," as the apiarists call them, arose in a cloud and sent the clerks scurrying to cover.
>
> Several felt the result of contact with the business ends of the honey-makers, and it was some time before the volunteers screwed up courage enough to return to their work. The mail-matter had to be separated, and that quickly, for already much time had been lost.

It is evident that the facetious reporter drew largely on his imagination, and that the actual occurrence was not nearly as bad as reported; but it was bad enough. It was just such an occurrence as this that resulted in Uncle Sam's prohibiting bees from the mails a few years ago. Any bee-keeper who is careless enough to put up a package of queen and bees so that it breaks open in the mail-bag should receive a good scoring.

BEE-KEEPING IN HAWAII.

We have had a pleasant call from Mr. Wm. Thompson, of Honolulu, H. I. Mr. T., although connected with the "Kamehameha" school, and instructor in the department of sciences, is the owner and manager of some 500 colonies of bees, all in one apiary. Two things I could not understand. 1. How he could manage to teach every day, and run so large an apiary; 2. How it was possible for him to keep so many colonies in one apiary. As to the first, he is obliged to employ help; and, moreover, the heaviest part of the bee-work comes when school work is the lightest. As to the second, he told me that he presumed he had too many, but that many more colonies could be supported on a given location in Hawaii than in many portions of the United States. Bee-keeping was confined to a narrow belt of land along the coast, and a company had been formed to buy up all the colonies in that region, the ostensible purpose being to "make a corner" on the honey market there, and at the same time secure all available desirable bee-pasturage, for it seems that that is quite limited. The area which the company is trying to secure control of will probably support only about 3000 colonies. They have not pulled Mr. Thompson into the "combine" yet, and it is unlikely that they will succeed in doing so.

Our friend says that bees can be kept inland, or up in the mountains, but the honey is dark and of poor quality. That which is produced in the area along the line of the coast is of very fine quality, if I can judge from the taste of a mere sample which he gave me.

We have sent him queens a number of times by mail, and I believe that in all cases they have gone through alive; but imagine my surprise when he said that the bees, even from these queens, grow to be so large in the salubrious climate of the Hawaiian Islands that they can not go through ordinary perforated zinc. I had asked him if they used perforated zinc, and he said he had tried it, but had had to give it up, as the bees could not get through it when filled with honey; and then when I suggested that the bees from *our* queens surely could, he shook his head.

The honey that is produced in Hawaii is all extracted, and is sold in the London markets. The beeswax, also quite an item, instead of being a bright yellow as it is in this country, is white—so white, indeed, that its purity has been suspected in London; but when it is remembered that this wax comes from the solar wax-extractor, and that said extractors are under a tropical sun, it is not to be much wondered at that the product should be thoroughly bleached.

Mr. Thompson gave me an interesting account of the situation in Hawaii, and of the struggles of the little republic under our previous and present administrations; of the wisdom and magnanimity displayed by President Dole, under trying circumstances. Of course, friend Thompson was heartily in favor of annexation, and he hoped that our American Congress would make the little republic a part of us.

THE BUFFALO-CONVENTION PICTURE.

After one of the sessions, somewhere about four o'clock, the bee-keepers assembled in the convention room at Buffalo were requested to adjourn to a raised platform in front of the building, and near one of the triumphal arches through which the G. A. R. veterans marched. The bee-keepers were requested to take their seats upon the reviewing-stand, while the artist took two shots; but as it was a little late he made a little too much allowance for the light, and "overtimed" the pictures so that they were too flat or too something; but on the morning of the same day, I think, the same artist took a view of a large number of the bee-keepers who attended the convention that was good. This picture was taken in front of the lodging-house where many of us were stopping; and the result in half-tone is reproduced on another page. This view, while it shows only a small portion of the convention members, takes in a list of many of the most prominent bee-keepers of the country. I regret that I am not able to give you the name of each one of the faces there shown, and I can remember only a few of the more prominent ones.

Beginning at the extreme left, the bald-headed gentleman with full-face, white tie, and side whiskers, light coat, arms folded, apparently leaning on the steps railing, is Mr. Wm. Couse, a gentleman who has long been secretary of the Ontario Bee-keepers' Association. He is one of the leading bee-keepers of Canada.

The gentleman just in front of him with arms also folded is Mr. S. A. Niver, or, as he modestly styles himself, "Morton's brother-in-law." Mr. N. has had much experience in selling honey and other articles directly to consumers. Possessed with a good stock of humor and with a "tongue balanced in the middle," he can sell honey like hot cakes.

The next face that I recognize, and just at the left of Mr. Couse, and a little higher up on the steps, with his hands folded in front of him, is Mr. E. T. Abbott, editor of the *Busy Bee*, a sprightly publication published at St. Joseph, Mo. Mr. Abbott, as I have before stated, is employed by his State to lecture on rural subjects during the winter. I never heard one of these lectures, but I have seen some of those who have, and they pronounce them as full of life and interest. His hen story, it is said, fairly captivates his audiences.

Mr. A. is always prominent at conventions, is an eloquent and earnest speaker. Very often independent in his views he says just what he thinks. If the "other fellow" does not like his style—well, he does not lose any sleep over it. While he may not be given to honeyed words he has a kindly heart and sympathetic nature.

At Mr. Abbott's left, and just in front of one of the pillars, is Mr. David Coggshall, who, I believe, owns an apiary of some 500 or 600 colonies of bees. Like his brother, W. L., he lives in a beautiful residence—one that would compare favorably with some of the dwellings on the fashionable streets of our cities. Both of the Coggshalls are bright keen business farmers—at least I judge them to be such from the general thrift and appearance of every thing upon their premises. There were no broken-down gates, tumble-down fences, no poor excuses of barns, or houses sadly in need of paint.

At Mr. Coggshall's left is Mrs. Mason, wife of Dr. A. B. Mason, the enterprising secretary of the U. S. B. K. U. The doctor is one of those whole-souled, happy, good-natured men whom it is a pleasure to know ; and while his face beams all over with smiles, he is quite liable to say something that will hit *you*, if you do not look out. If you do not like it—well, he is too fat and happy, he says, to worry very much about it. Mrs. Mason is one of those quiet, pleasant women, whom it is a pleasure to meet. She very often goes with her husband to bee-conventions, and the doctor says he takes her along to keep *him* straight.

In front of Mrs. Mason, with his arm resting upon the railing, and sitting down, is the kindly face of Dr. Miller. He is another strong convention man. Without him, a convention to me always has something lacking. The doctor has a happy faculty of throwing in jokes and short pithy speeches that help very much to enliven a convention.

Just back of Dr. Miller, and next to Mrs. Mason, is Geo. W. York, president of the U. S. B. K. U., and editor of the *American Bee Journal*. He was again honored with the office, and will probably be our presiding officer at the next meeting at Cincinnati or Omaha, or wherever it may be held. Mr. York is a little chap ; but what he lacks in stature is made up in energy and hard work. If he loves his friends he loves them with all his heart. He never believes in doing any thing half way.

At Mr. York's left, and in the background, a little to the right of the middle pillar, is Mr. E. A. Wander, of Hartford, Ct. I made his acquaintance at the Buffalo convention, and had the pleasure of his company at Niagara Falls. He is royal good company.

In front of Mr. Wander is Mr. O. O. Poppleton, a bee-keeper of national reputation, of wide experience in the North and the South —one who, while he does not write very much for the journals, yet, when he does write, has something to say. He is a very careful, thoughtful bee-keeper. So careful and conservative is he that he has been engaged to make some experiments for us for a year or so back, in testing various articles that we were about to put on the market, but which we could not do in our northern climate.

Next to Mr. Wander, and back of Mr. Poppleton, almost too much in the shade to be seen distinctly, appears Mr. P. H. Elwood, of Starkville, N. Y. He is a large man of fine appearance; nor does this exterior belie his real heart. With the possible exception of Mr. W. L. Coggshall, just in front of him, and a little to his left, he owns and operates the largest number of colonies of any bee-keeper represented in this view. In general characteristics he and Mr. Poppleton are a good deal alike—careful, conservative. He is too busy to write much for the journals, and too modest to say much in conventions. But when he does express himself he gives us something to think about.

Just in front of him, with his elbow resting on the railing, is Mr. W. L. Coggshall. In our previous issue I referred to the rapid way in which he and his helpers handle bees; and as I expect to write up more in detail in future in regard to Mr. C.'s methods, I will not say more about him at this time.

The next face that I recognize on the porch is that of Mr. Miles Morton, of Groton, N. Y., who is the "brother-in-law" of Mr. Niver. Mr. Morton has been for years the local supply-dealer in Tompkins Co. During my recent visit to New York State I called at his place. Like the Coggshalls he has a beautiful home, and in the rear a nicely equipped shop for making hives, sections, etc. Mr. Morton must be another Dr. Tinker, for it is easy to see he is a born mechanic. Every thing turned out from his shop is beautifully smooth and accurate. He is a man of original ideas, and in his quiet way he has been using and advocating certain devices which, in my humble judgment, will in the near future come to the front. But more of this at another time.

Getting off from the porch, and just in front of the pillar on the right, with his hands behind him and his hat on, is the Hon. E. Whitcomb, vice-president of the U. S. B. K. U. He had come all the way from Friend, Neb. For years he has been one of the active bee-keepers of his State ; and the handle to his name shows that he has dabbled more or less in politics. I took a walk with him through the streets of Lincoln, Neb., and found that he is known familiarly pretty well over the city. He introduced several of us to Senator Thurston, of the U. S. Senate; and I could not help noting on all occasions that one and all seemed to feel that Mr. Whitcomb was a man of influence.

Just in front of Mr. Whitcomb, and a little to the right, with his back against the railing, and his head between two flags, stands R. F. Holtermann, editor of the *Canadian Bee Journal*, and apicultural experimenter of the Ontario Agricultural College. Mr. Holtermann, although a young man, has been honored with the office of president of the North American Bee-keepers' Association, and has also been its secretary. For one and possibly two years he has been president of the O. B. K. A., and for years has been recognized as one of the leading bee-keepers of Canada. He is active in conventions, and writes to a considerable extent for the agricultural press.

Just in front of Mr. Holtermann, and a little to his right, stands Mr. Frank Benton. This gentleman has probably traveled more miles after big and little bees, passed through more real hardships, and has probably seen more of the apicultural world in this and other lands, than any other living man. It was he who accompanied D. A. Jones, and acted as interpreter for that gentleman in a trip through Europe and to the Holy Land after eastern bees, the result of which trip was the introduction of Syrian and Cyprian bees into this country; and it was Mr. Benton who went through the jungles of India after *Apis dorsata*, studied them in their native homes, and sent back reports at various times in regard to these and other species of bees. He is probably more intimately acquainted with the different bees of the world than any other man living. At the present time he is connected with the Agricultural Department of general government, in the Division of Entomology. Mr. Benton is exceptionally well educated, reading and speaking fluently several different languages. He is a fine conversionalist and a direct and forcible speaker; and were it not for some unfortunate things that have happened at recent conventions (whether he was right or wrong I need not discuss) he would be one of the most popular men in our ranks.

There, I believe I have given all the names than I can remember. There are some faces among those above that seem familiar to me, but at this time and place I can not locate them for I am not good at remembering names, especially if they are piled upon at the rate of four or five a minute.

This picture does not by any means represent all the leading bee-keepers who attended the convention at Buffalo; but when I come to review in my own mind the lives of a few of our leading lights, I feel proud of our industry and of the men who represent it; and in my travels among bee-keepers I am more and more convinced of the fact that they are superior men and women. A large number are leaders in some of our best professions. No wonder, then, that they are shining lights in the bee-keeping world.

ROTTEN BROOD IN THE APIARY; SENDING SPECIMENS TO MEDINA FOR IDENTIFICATION.

THE foul-brood inspector for Ontario, Canada, Mr. Wm. McEvoy, in the *American Bee Journal* for June 17, makes the following good points:

> For 17 years I have warned the bee-keepers to keep all dead and putrid matter out of their colonies, so as not to cause foul brood; and while I have been warning and holding up Death's head and the cross-bones, the professional guessers, who were not practical bee-keepers, have been encouraging the wholesale spread of the disease by saying that rotten brood in hives would not cause foul brood. Such teaching as that has caused thousands of bee-keepers to be very careless; and when the disease has broken out in their bee-yards, it was left to run its course to the ruin of their apiaries, and all others in the same localities. It is only the very few among many thousands of bee-keepers who have succeeded in curing their apiaries of foul brood after it got a good start in their bee-yards, and the owners left to themselves to manage the curing.

It is certainly wise to err on the safe side; and while rotten brood may not necessarily be foul brood, nor be capable of developing into that disease, yet it should always be looked upon with suspicion by the bee-keeper, especially if he does not know exactly what the disease is.

I have advised bee-keepers of late to send us doubtful samples for identification. Of course, such pieces of comb should be securely wrapped, preferably in paraffined or waxed paper. If you can't get either of these, get some stout paper and grease it on both sides. Never think of sending brood wrapped in paper simply, or in a paper box. After wrapping as directed, slip it in a tin box, the comb packed in cotton batting. This latter is to act as an absorbent should there be any dripping.

Two or three samples without the box came to us with the paper soaked through and dripping; but happily the specimens were not foul brood. We are quite willing to help our subscribers all we can; but we do not wish to place our own bees and our own interests in jeopardy.

Each sample of brood is thoroughly inspected, and a report is made in regard to its condition by return mail. It is my practice to take a doubtful sample, go before the big boiler-arches, open up the packet, smell it, tear open the cells with a little sliver of wood, and then toss the whole thing, package and all, into the raging fire. We burn all such specimens, whether they prove to have foul brood or not.

One man was about to destroy his whole apiary, thinking he had foul brood. At my request he sent me a sample, and it proved to be only chilled brood—brood that had died owing to the cool nights prevalent in the latter part of May. I told him the bees were all right, and to let them alone. How much we saved this man the reader can figure out for himself.

I have given similar advice to several others, and am willing to do it again; but our friends must not put *us* in jeopardy by putting up the specimens carelessly.

KEEPING HONEY OVER FOR BETTER PRICES.

MR. J. F. MCINTYRE, of Fillmore, Cal., who was present at the Buffalo convention, told us how he stored his honey in large storage-tanks, and held it over for another season. If the market prices did not seem to justify him in disposing of it that year he held it over. The honey-flow in California is very uncertain. A good year is liable to be followed by a poor one. It is the year following, possibly a poor one, when honey is a scarce article, that Mr. McIntyre unloads his crop at paying prices. The white-sage honey is not inclined to candy, and he finds it profitable for him to store it over till prices suit him. He said he could keep honey stored in his large tank some two or three years without candying, and he could afford to wait till the market went up.

Some one, in the course of his talk at the convention, asked him what his honey crop was. Year before last he had one thousand 60-lb. cans of honey. It is well known that California bee-keepers wholesale and retail in square cans holding 60 lbs. On account of the dry climate, barrels and kegs can not be used. Well, those thousand 60-lb. cans, or 60,000 lbs. of honey, was all produced from one apiary. This apiary is located in a valley, and comprises some 500 or 600 colonies. He narrated how the bees would fly six and even seven miles up and down the mountains. Those long flights explain why so many bees can be kept profitably in one apiary.

NOTES OF TRAVEL

BY A. I. ROOT.

Our older readers will remember Mr. Fred L. Craycraft, who used to write for the JUVENILE GLEANINGS when we had a "juvenile" issue, fifteen years ago. Well, you may not all know that Fred has grown to be a bee-keeper of no small "dimensions;" in fact, he is at present the owner of an apiary of something like 500 or 600 colonies in the island of Cuba. Well, just before the convention at Buffalo we were agreeably surprised to meet this same person here at the Home of the Honey-bees, and he accompanied us on the way to Buffalo. As he is quite a cycler he accompanied me on a pleasure-trip to the vicinity of Niagara Falls. I hardly need tell you of the beautiful path for wheelers from Buffalo to the Falls. We, however, branched off from the regular route in order to call at Christian Weckesser's, at Sanborn, N. Y. Friend W. is a seed-grower and market-gardener, and of course I greatly enjoyed looking over his vegetables and fruits. Like myself, however, friend W. finds that, in attempting to grow all kinds of fruits and vegetables, he has a pretty big job on his hands; and when it comes to growing seeds for sale *also*, I tell you one has most of the time too many irons in the fire, especially if he wants to take a little time now and then to get acquainted with his wife and children. Friend W. has the wife and children too, and we had quite a pleasant talk about "our homes" as well as about our vegetables and fruits. Plums were just getting ripe at the time of our visit, and I for one greatly enjoyed sampling varieties I had read about but never saw or tasted before.

I can not tell you of all the new things I saw there; but I want to mention Kendall's Giant sweet corn — a variety as early as, or, if any thing, more so, than the Corey, and at the same time producing good-sized ears free from the smut, that seems to hang about the Corey so persistently. I saw it growing, and examined the ears, as I did also the Corey planted at the same time and on the same ground. I am so well satisfied of its superiority that I expect to offer it for sale next season in place of the old standard Corey.

Our next point was La Salle, near Niagara, where that well-known writer and author on every thing pertaining to gardening, Tuscio Greiner, has his abode. Friend Weckesser kindly volunteered to go with us to La Salle; but it was just about dusk when we reached there, and Mr. Greiner was absent at Buffalo. However, we greatly enjoyed looking over the grounds. No wonder things grow, for the beautiful soil was so filled with stable manure that it made me think of the grounds around Arlington, in the suburbs of Boston. We saw the various things friend Greiner has told us about in his articles in the different agricultural periodicals; the house for curing onions, open at the sides, with broad roof to keep off the rain; the beautiful onions on their respective trays where they were being cured preparatory to pickling; the great Prizetakers, grown by the new onion-culture process, showing that friend Greiner practices just what he preaches. I also greatly admired the white onion called Garganus. This I saw both here and at friend Weckesser's grounds. It is larger than the Prizetaker, and it seems to me the onions are more uniform and true to type. And, by the way, we talked about the fact that the seed of any vegetable, when it is first introduced, is greatly superior to any that can be bought a few years later. We also saw where friend Greiner had grown onion-plants in his greenhouse, in *coal ashes*, and nothing else. This seems to me a little astonishing. Mr. Weckesser said he saw them at different stages of growth. The onions are of better color and of better growth than when produced in the rich greenhouse soil.

When I spoke about going to a hotel for the night my good friend Weckesser replied:

"Mr. Root, you trust me a little, and don't do any thing about going to a hotel just yet. There is a man who lives here whom I want you to see; in fact, I am expecting something rich when you two get a little acquainted."

On the way to the place mentioned we passed a store, beautifully lighted, as I supposed, by an electric light inside, and another one out in the porch."

"There, what do you think of that light?"

"Why," said I, "it is a very pretty light indeed. Is it some new method of using electricity for illuminating?"

"Mr. Root, it is not electricity at all. Just take a good look at it and we will go on."

We drew up in the darkness in front of a very pretty residence; and when told that Mr. Long was at home he invited us to go in. Before we entered the apartment there was a little hustling around as if something had been carried out of the room, and I soon became aware of a peculiar smell of chemicals that brought vividly to mind my boyhood days. When I asked about it our host admitted they had just carried out some of the chemical apparatus, but suggested that perhaps it would please *me* as well to have it brought back. Then one of the boys brought in a sort of lamp made of tin, surmounted by a gas-jet. This gas-jet gave forth a small blue flame. It looked to me like the flame produced by the oxy-hydrogen blowpipe of forty years ago, especially when said blowpipe was directed against a piece of lime or other refractory substance.

"May I ask what gas it is that is giving this exceedingly brilliant flame?"

"Mr. Root, you say you studied chemistry once. Let me explain it briefly by saying that it is the new acetylene gas. Its chemical composition is expressed by the formula C^2H^2,* as you may know."

"Why," said I, "it is one of the hydrocarbons, like illuminating-gas, only you have a larger percentage of hydrogen. Is it a new discovery?"

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*Illuminating-gas is, if I am correct, light carbureted hydrogen, C^2H^4; thus it contains double the amount of hydrogen found in acetylene gas.

"No. Acetylene gas has been known for years. You probably saw it mentioned briefly in your chemistry forty years ago; but since Niagara has been harnessed, and we have electrical energy in greater volume, and cheaper than the world ever saw it before, some odd things have come to light. About four years ago, while attempting to produce something that was wanted, a quantity of lime and carbon was exposed to this tremendous electric heat; but they did not succeed in producing what they expected, and the product of their experiments was thrown away. When some water was accidentally thrown on to this substance a very curious phenomenon ensued. Here. Examine this piece of stone, will you?"

The mineral that I took in my hands looked like limestone. After I had examined it sufficiently, one of the boys handed Mr. Long a bit of ice perhaps as large as a hickorynut. Another gave him a match, and, after placing the lump of ice on the limestone (as it appeared), a lighted match was held over it. The ice took fire like a piece of resinous pitch, and burned up with wonderful brilliancy. When the ice was all consumed, the fire went out. Next a piece of this new mineral, calcium carbide, was dumped into a tub of water, and quite an ebullition commenced at once. When a lighted match was applied to the surface of the water we had a fountain of flame. This calcium carbide liberates pure acetylene gas just as soon as a drop of water touches it; and the lamp that friend Long has been engaged in perfecting is simply a tin can to hold the new chemical. You just pour some water on the limestone, screw on the top of the lamp containing the burner, and it is ready to light. When you turn off the gas, so that no more can escape, it accumulates and pushes the water up into the reservoir above until no more touches the lime; then the gas ceases to be generated until somebody opens the burner and lets some of it out; so you see it is automatic in its operation. The gas is generated just as fast as it is burned, and no faster.

Permit me to say right here, that, when I was seventeen years old, I was astonishing the people right and left by showing experiments in electricity and chemistry. I used to go around to the schoolhouses, charging ten cents admittance — schoolchildren half price. During the forty years that have passed since that time I have kept track, more or less, of the developments in electricity. No wonder friend Long and I talked far into the night. I am afraid I forgot all about our friends Weckesser and Craycraft and all the rest. They dropped off one by one, and left us talking.

This calcium carbide is now produced in a large factory at Niagara Falls. It is offered for sale in quantities at four cents a pound; and it takes so little of the gas to make a tremendous light that four cents' worth of material will do more lighting than a like amount of money expended in kerosene oil, cheap as it is in many places. Instead of filling your lamp with oil you take out the slacked lime and put in another chunk, something as you slip a cartridge into a gun, and that is all there is to it. There is nothing greasy or wet or sticky about the apparatus, or will not be when it is perfected. If you wish to know more about acetylene, write to D. N. Long, La Salle, N. Y. I believe a complete lamp at present costs four or five dollars. I expect to have one as soon as they are prepared to offer them to the public.

I told you in our last issue why we abandoned our wheels the next morning. Although I have several times visited Niagara I had not until this time made the trip clear under and through the falls. During my previous visit I believe I did not get *enough* of its wetness and grandeur. Friend Craycraft and I, however, decided to take it all in. We took off every thread of our ordinary clothing, and put on something like bathing-suits; and over these, suits of yellow oilcloth, including a hood that came clear over the head. As I am susceptible to chills, I was a little fearful, when I walked along the slippery walk, of the cold spring water trickling down upon us; but when I got far enough into the water of the great cataract I was surprised to find it comfortably warm, even on a somewhat chilly morning. We first went clear *around* the fall through the spray, witnessing the rainbow that makes a complete circle. They claim this is the only place in the world where one can see a rainbow that goes clear around like a wheel. Outside of this is a second rainbow, and part of the way round you can see a third one. I have many times wished it were possible to go right into and through the falling water; but I did not know before that this had been done so completely. I experienced at first the pleasurable sensation I have so often described, of breathing watery spray. But pretty soon there was more water in proportion to the air than was really agreeable. I began to be afraid I should strangle, and asked the guide and friend Craycraft if they were prepared to carry me out if I fainted from loss of breath. After they had expressed their readiness and *ability* to take me safely through, I ventured onward. Just imagine yourself outdoors in the most pelting rain you ever saw; then suppose the raindrops to be so thick that there is more water than air. It was a sort of spray; but this spray came in such volume that, when the guide told me to look straight down, it seemed to me as if the weight of the water would crush me to the earth, or, rather, to the stout iron bridge on which we were walking. Occasionally the water would sway over to one side so I could look up. No tongue can describe nor pen picture the sight. The water seemed like billows of snow. In fact, it made me think of the roaring and tumbling snowdrifts that I saw through a telescope over Pike's Peak. Yes, I was "right in the swim" of Niagara Falls; and it seemed as if one *might* almost swim in this watery spray. I wondered who it was who was sufficiently daring to undertake to construct the iron bridge right through this boiling mass of water. Did the workmen get accustomed to it? or did they choose some time when the great cataract was asleep, and forgot to pour down its terrible and *relentless* stream? Panting and gasping I said to the guide, "Do we have to go back the way we came?"

"Oh! bless you, no. We go in one way and come out the other. You have got all through it;" and for the time I was glad. Yes, I paid a dollar for the privilege of going "behind the curtains," and being for a few brief moments right in the midst of the roaring and seething monster. And it was worth a dollar too. I shall never forget it; but I do not want to go through it again, even if the guide did say, "After you have been through three or four times you can breathe without any trouble at all. One has to get used to it."

Our guide seemed to be quite a sensible, intelligent, and bright fellow, and I felt a good deal of respect for him until just as we reached the top of the stairway, when he said, "It is customary for *gentlemen* to remember the guide before they go away, by some remuneration for his services."

You pay a dollar for the privilege of going under and through the falls. This is fully explained in circulars, and at the office before you go down; but not a word is said to the effect that you are expected to pay any more after you have paid a dollar; and I would suggest to the proprietors of the aforesaid institution, that, if they wish to preserve the respect and confidence of their patrons, they will put a stop to this sort of begging for a little more money. If I am correct, the whole thing is getting to be in disrepute. After you have paid the advertised prices at a hotel, in a Pullman car, or anywhere else, you are not expected to pay the waiter or porter something extra for being *decently* waited on. I told the guide I did not believe in that sort of way of doing business, and did not think it my duty to encourage or sanction it.

HOW HUGH VANKIRK, OF WASHINGTON, PA., GETS 20 CTS. A POUND FOR HIS HONEY, BOTH COMB AND EXTRACTED.

In the first place, he produces from the white clover on those Pennsylvania hills about the finest article of clover honey I ever saw or tasted. He works his apiaries for both comb and extracted honey. The former is cut out of the frames or sections, and put into glass jars, and the liquid honey is poured around it. All this may be quite familiar to you; but when he showed me one of his jars containing 3 lbs. of honey, I raised my hands and uttered an exclamation of surprise. The jar, I should think, is flint glass. It is made by the Hazel Glass Co., Washington, Pa., and the cost, I think, was only about 7 cts. apiece.

Of course, this is almost twice as much as the cheap Mason jars; but if it has the effect of making the *honey* sell for almost twice as much, we can well afford the extra expense of the jar. The honey is put up only as fast as it is sold. None of it is allowed to candy on the dealer's hands; neither is said dealer given so many jars at once that they get dusty and flyspecked, etc. When I took one of the jars in my hand I was almost ready to say I would give 60 cts. for such a jar of honey, just because it looked so pretty; and when my friend took off the cover and handed me a spoon, and asked me to taste it, then I was fully satisfied to pay 60 cts. for it just to put on my own table. May be my long wheelride had given me an appetite for honey, and an appreciation for nice-looking things; but it seemed to me then I had never before found any honey equal to that, both in looks and in taste. Friend V. insinuates that there is not anywhere in the world any honey equal to that from the Pennsylvania *hills;* and that is a pretty good way to think of one's own locality. Of course, the price of the jar has to come out of the 3 lbs. of honey; and when he leaves it at the stores he gives them 10 cts. commission on each jar they sell; but where he carries it around to the houses, and retails it out, he actually gets 20 cts. a pound for his honey, package thrown in, as I have explained.

Now, then, what is to hinder people in other places from getting a like fancy price for an equally "gilt-edged" product? This clover honey was not as white as the California sage, but it had a beautiful crystalline amber appearance, even though it was so thick that a spoonful could be turned over safely, even during a warm day, without danger of dripping. I will tell you more about friend Vankirk some other time.

OUR NEIGHBORS.

Thou shalt have no other gods before me. . . For I the Lord thy God am a jealous God, visiting the iniquity of the fathers upon the children unto the third and fourth generation of them that hate me, and showing mercy unto thousands of them that love me and keep my commandments.—EXODUS 20:3, 5, 6.

I had been having a 25-mile ride on the wheel, the latter part of it over some very long hills. My destination was Silver Lake, Summit Co., Ohio. I sat in an easy-chair to rest after my fatiguing ride, and was having a pleasant chat with the proprietor of the place. Suddenly somebody called him to the telephone, and a minute later he seemed somewhat disturbed, and asked me to get my hat and follow him quickly. I did so, and on our way through the darkness he explained to me that his boys had just rescued a woman on the opposite shore of the lake. They heard something on the other side, and sprang into the electric launch, which was all ready to shoot out into the water with incredible speed by simply pressing a button. They very soon reached the point whence the sounds proceeded. A woman was in the water, and they had rescued her. By the time he had finished telling me about it we were down at the landing. The boys had carried her into one of the buildings; and while the women-folks were busy in getting her a change of clothing, several attempts were made to talk with her; but she did not seem inclined to speak. She was a young woman, well dressed, and of attractive appearance. I decided in my own mind from the first that it was an attempt at suicide. And then I began wondering, as I looked upon her, how it was possible that one just in the prime of life, with every thing, apparently, to make one rejoice in living, should desire to throw away this wonderful and precious gift from God. While these thoughts were in my mind it seemed to me that I could approach her in such a way that she would speak. I leaned over her, and said something like this:

"My poor friend, we know nothing about what it is that troubles you; yet God knows, and he only can help you in a time like this. Will you not put your trust in him?"

She thanked me; and when I asked her what we could do for her she requested to be sent home, and gave me her street and number. The doctor was soon at hand, and pronounced her in a nervous chill. She was dressed in dry warm clothing, and sent to her home. The daily papers afterward announced that it was, as I had suspected, an attempt at suicide. She was engaged to be married to a young man from Toledo; but just on the eve of the wedding he disappeared, and she afterward learned that he was already married.

Things of this kind have happened so often you wonder why I take the trouble to mention it. I will tell you. In thinking it over I felt impressed that it was my duty to plead with this poor young woman, and to use my poor powers of persuasion to induce her to choose Christ Jesus as her friend and confidant, and to cease to mourn or feel troubled about one who had shown himself so utterly unworthy of her care or regard. Some of you may smile at my simplicity. You may think I ask something that is impossible to the average young man or young woman. Dear friends, I know whereof I speak, for I have been through Satan's toils. God has given you as well as myself a human life to live. It is a great and a precious gift; and if we are loyal and true to the great Giver, the great Father of us all, we shall so regard life. Nothing should induce us to think of throwing it away. *God gave*, and no possible combination of circumstances should make us think we have any *right* to throw away or destroy that which he gave. Satan never misses an opportunity to get into the human heart and persuade one that God conferred no favor in giving us life. In fact, I have sometimes thought that Satan's whole work is only for the purpose of getting his victim to throw away and destroy the life that God gave. We think of suicide because we have broken or begun to break this first and greatest of all the commandments, as in our text. When that smart lawyer came to the Savior and sought to test him by asking which commandment was the greatest and first of all, he replied, "Thou shalt love the Lord thy God with all thy heart, and with all thy soul, and with all thy mind. This is the first and great commandment;" and through all my observation, especially since I have been trying to follow the Master, it has seemed to me the greater part of the troubles in this world are because we let something else come *before* God. This young woman had become so bound up—in fact, her whole life had become so centered in this unworthy man — that she had *forgotten* God; and when this man proved false — when he had subjected her to that terrible humiliation of having to come before friends and foes as a poor, deluded, disappointed woman, she felt as if she could not stand it, and she finally decided to drown her troubles in the oblivion she hoped to find beyond the grave.

Sometimes we ponder and wonder that the world has stood so long, and yet nobody knows—that is, the great part of the world at least *thinks* nobody knows—whether it is possible to escape trouble and humiliation and guilt by suicide. Even the Bible seems strangely silent on this subject. The more I study it, and the more I study humanity, the more I am satisfied that suicide *never* mends matters. Jesus himself said this was the first and greatest commandment of all. We must be loyal and true to God if we expect to be even happy in this world of ours. Many young people have an idea that such attachments, especially if they are of several years' growth, are not easily cured. I think dime novels and similar foolish romantic stories are responsible for a great part of this. A married woman who had grown-up children once confessed to me that she *could never get over* the consequence of an attachment of years before, for another than her husband. She said she could *not* keep his image out of her mind. I said to her something like this:

"Why, my dear friend, you are simply trifling and dallying with Satan. *He* is the one who has got hold of you, and will not let go. You *must* keep such thoughts out of your mind. It is almost as sinful and as wicked as for the intemperate man who says he can not control his appetite for drink. Everybody tells him, and he knows it, that it is dangerous for him to even think about it. His physician and his pastor tell him to keep busily at work at something that is good and honest; and as he values his future life and happiness he must absolutely *pull* his thoughts from all such things. He must turn his feet away from the direction of evil, and he must put the thought far from him. He *must* do it, even if it requires prayers, groans, and tears; and you, my friend, must do the same. You are sinning even now in telling *me* what you have told. But if you have come to me for counsel that my prayers may second your prayers, then I will do what I can for you. With Christ Jesus to help, this thing is not so *very* hard. In a very little time the dear Savior rewards the faithful and honest sufferer. I know this, for I have been in his chains. Oh that I had the persuasive power and eloquence to tell all the world, and to make it believe, that there is no *need* of being in the fetters of sin. Christ *died* that we might *live*, and that we might be *free* from sin; and we have thousands of God's promises to the effect that whoso cometh to *him* he will never cast out."

Let me say further to those who have struggled and battled along this line, there are thousands of cases in this world of ours to show and prove conclusively that this affection — this love between the sexes — can be controlled by reason and common sense. Right among my own relatives I am quite familiar with a case where, for many reasons of expediency, a woman married a man for whom she had no love at all. Her sister died, leaving a family of little children. It seemed to be a Christian duty, under peculiar circumstances, for her to take the departed mother's place. She was a Christian, and she asked God to help her do her duty. In a very little time she loved this man as much as any woman should love her husband. In fact, she said she feared in her love for him she was forgetting her Savior, for he was a very good man indeed. When Satan whispers to you that you can not stand it — that it will kill you — just say to him decidedly you are going to do your duty, even if it *does* kill. *Duty* and not inclination or feeling must rule. Our feelings are no guide in any thing unless duty and reason stand at the head.

The above thoughts were in my mind as I retired for the night. A pretty little room was given me, that opened out upon the lake, and the full moon was shining. I knelt down and thanked God, as I have thousands of times before, that he had given me a human life to live. Then I thanked him again that he had taught me the importance and the beauty of that first and great commandment. Then I prayed for the young friend who had just been rescued and brought back to life. As I stretched myself out on the beautiful soft bed that had been provided for me, a sudden feeling came over me of thanksgiving to God. Perhaps my long ride on the wheel had something to do with it. I began thinking of the pleasant sleeping-places that seemed to fall to my lot, no matter where I happened to be. Is it not a little singular that one can travel hundreds and thousands of miles, and yet, when night comes, rarely fail of finding a comfortable, pleasant, and tidy resting-place —yes, a resting-place that bears evidence of woman's touch and loving feminine hands. Again and again has it seemed to me that I did not half deserve the dainty beautiful sleeping-apartments that are placed at my disposal. May be some of these hard-working women think we men do not appreciate their efforts in this direction. If it will encourage them any I want to have them know that *I* at least do. Then from this I began meditating on the beautiful plan which God ordained in the creation of the sexes, and their relation one to another. Next to love to God should be the love of parents; and the love between a young man and a young woman is like the opening flower — the rosebud if you choose. It is one of the most sacred and holy influences that should move men and women. But even here Satan has a foothold. I *admire* the man who is willing to give his life, who gives himself, all he is or all he hopes to be, toward making the woman of his choice happy; but when this woman dies, or when by some strange mishap she is married to another, the man, if he is created in God's own image, should be a man *still*, and make the best of the circumstances. My mind wandered to other things that should make us happy here in this world of ours. I looked out over the beautiful Silver Lake, and then at the bright moon sending down its genial beams; and just then, away out over the water, a beautiful melody broke forth. Somebody was singing. At first memory groped back through the dim past to recall that song of olden time; and as the singer came nearer I caught the words :

When in thy dreaming,
  Moons like these shall shine again,
And daylight beaming,
  Prove thy dreams are vain,
Wilt thou not, relenting,
  For thine absent lover sigh,
In thy heart consenting
  To a prayer gone by ?
Nita ! Juanita !
  Let me linger by thy side !
Nita ! Juanita !
  Be my own fair bride ! *

I had heard the melody hundreds of times in years gone by, but I never appreciated it before then. I presume the words were supposed to be those of an Indian to his dusky bride. Then I thought of the genius who gave the world not only the words but the beautiful music. Why does music touch us and stir us so wonderfully? Somebody has called it the universal language. It affects alike all tribes and all nations, no matter what language they speak. The singer of the night may have been one of more than usual talent, but perhaps not. At any rate, it gave me a new conception of the power and pathos of music ; and I thanked God again and again for having made it possible for us to appreciate and enjoy this strange and beautiful thing that is called harmony. Then I thought of poetry—poetry that we find in many of our hymns and songs—poetry to make men better —at least all poetry *should* do so. Then I was permitted to take a bird's-eye view, as it were, comprising all human attainments and accomplishments, including the joys that are in store for those who love God. I never saw it spread out before me as it was on that moonlight night. And then I prayed again that, if the opportunity should offer, I might tell this young woman of whom I have been speaking, of what she tried to throw away when God in his mercy planned her rescue. It came out, as you will notice, through this new and wonderful servant of man, electricity. Friend Lodge has at his place one of the electric launches that were used at the World's Fair. Thousands upon thousands wondered to see them start in an instant with that mighty hidden power. No oarsman could have rowed a boat fast enough to rescue that drowning woman. As I sat in the seat at one time, enjoying a ride on the electric launch, the proprietor told me that under the seat where I sat were stored $800 worth of storage batteries. These batteries are replenished by the electric current that runs the cars up to Silver Lake. The boat is ready to shoot out in an instant at any moment, day or night, and the power that may be turned on is prodigious. You and I, my friend, have been permitted to live in the age of electricity. We do not know what is yet coming ; but we may thank God, who has permitted us to see these great conveniences, for his loving regard to us his children. All together, this little time I passed just before going to sleep on that particular night was one of the richest experiences I have ever known in my life. I have alluded to these things before, and told you that it almost seemed to me as if I were in the presence and enjoying the companionship of unseen friends—the companionship of those who know of God, and of his love to us his children. If I had been in the habit of taking drugs and stimulants I might have thought that this was the effect of something of the sort, and that there would be a reaction. No, I had not even been guilty of drinking even strong tea. The exhilaration, what there was of it, came from exercising my muscles, lungs and heart included, in riding over difficult hills just about sundown. And, besides this, I had been praying that God's kingdom *might* come, and his will *might* be done on earth as in heaven. My prayers had been answered to the extent of giving me a little glimpse of heavenly things, and I was *surprised*, but not *ungrateful*, I assure you.

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* I would not have the friends think that I entirely indorse this old song. It came out and was given to the world, if I am correct, before the advent of Gospel Hymns ; but yet it delighted the young people in the years gone by ; and probably through the influence of the beautiful music, to say nothing about the sentiment of the words, it may have brought cheer and brightness to many a troubled soul.

VALUABLE RECIPES FOR A CERTAIN SUM OF MONEY.

Below we give an advertisement verbatim which appeared in a recent horticultural journal :

> FRUITS, VEGETABLES, BERRIES, GRAPES, ETC., NEARLY TWICE USUAL SIZE.
>
> Also makes melons, corn, etc., grow mammoth size. A wonderful liquid plant-food. Has never failed. Results guaranteed. Formula sent sealed for $1. Send 2c stamp for more particulars if wanted. Reputable reference. Address W. H. GARRETT,
> Box 257, Mobile, Alabama.

As soon as the journal was received I promptly sent a dollar—not that I expected any thing of value, but because I am anxious to see this business stopped, of advertising recipes, etc. Below is what I received, written with a pen, as an equivalent for my dollar :

> FORMULA.
>
> Sulphate of iron constitutes the plant-food. Take old pieces or scraps of iron and put them into a wooden vessel, filling it about ⅓ full, and pour on water until the vessel is full. Let it stand 24 hours, then draw off and use. The vessel may be refilled a number of times with water. If the iron is not convenient take *copperas*, using *one* pound to *four* gallons of water. Suspend it in the vessel in a gunny or other coarse-fiber bag, and it will dissolve rapidly. This should be applied after the bloom falls. Pour it about the roots, using one pint on a hill of vines, and a quart on trees 2 to 6 years old, and half a gallon on those over 6 years old. This should be applied once a week until the fruit is half grown.
>
> If used in solid form, put one ounce of copperas about the roots of the hill—not in contact with them—and for trees 2 to 4 years old, 2 ounces; and over 6 years, 4 ounces. Applications every other week for period named. Pieces of iron buried about the roots will give a constant supply.
>
> Pear Blight.—Spread 1½ pounds copperas under tree out to end of limbs; or bury pieces of iron about the roots; or bore a ¾-inch hole into the tree and put in a teaspoonful of copperas, and plug up.
>
> Mobile, Ala., Aug. 31.

The above recipe may, it is true, have some value, although I am sure its value is greatly exaggerated. For years statements have appeared in different periodicals, to the effect that iron filings or iron chips are valuable as a fertilizer. The fact that luxuriant and productive pear-trees are so often found closely adjoining a blacksmith shop has been adduced as proof. To test this matter we have at different times taken iron filings and iron turnings from our machine-shop, and placed them around fruit-trees ; but I have never been able to see any positive benefit, judging from several experiments. If I am correct, our experiment stations have also tested the matter thoroughly. The idea of boring a hole in a tree, and putting in copperas or any other chemical to cure pear blight, is all folly. The matter has been fully written up. Mr. Garrett may be a well-meaning man, but he has certainly let his enthusiasm run away with his better judgment. I do not know how many dollars he has received besides my own ; but I hope he will think better of his plan, and stop taking money from his fellow-men in this way. One dollar should buy a good-sized book telling all about chemical fertilizers, and sulphate of iron among them.

ELECTROPOISE, OXYDONOR, ETC.

We are pleased to notice that that excellent periodical, *Electricity*, has seen fit to copy a large part of our article given in issue for Aug. 1 ; and in speaking of the Patent Office and the way in which it was finally persuaded to grant a patent, it says :

> It now seems that the United States Patent Office has also had its skirts besmeared in the same puddle.

At the close of the extract they sum up as follows :

> As stated further along by our contemporary, it is certainly a remarkable position for our government to take that it will grant a patent for a class of things which intelligent men the world over consider to be frauds.
>
> It seems, however, that such is the position taken by our Patent Office, and if this be so in one case, where is it going to stop ? The spiritualist, the necromancer, and the fakir of every kind will necessarily have to be protected, and the honest man will go without his dues.

While this matter is again before us, permit me to say that two persons have rated me soundly, because they believe Oxydonor to be an honest invention. One of the writers goes so far as to quote Scripture, saying, "Whether this man be a sinner or no, I know not ; but one thing I know, that, whereas I was blind, now I see." I give this to show how hard it is many times for people to give up their delusions. Now to business : If it is neither electricity nor oxygen (as they still persistently claim) it must be some new force just discovered, and hitherto unknown to the world. But the question then arises, Why does not the world, especially the scientific world, receive it with joy ? Why is it not heralded from one end of the world to the other as were the X rays which we are all now familiar with ? Has the world been backward ? have scientific men been slow in investigating and assenting to the claims of this wondrous thing brought out by Roentgen ? Let those who defend Electropoise and Oxydonor explain if they can.

CIGARETTE-SMOKING.

A lady whose husband keeps a drugstore in Dayton, O., very innocently remarked recently that the cigarette business was a good business, because, when a man once commences buying them, he *never gives it up*. One of the company suggested that the tax must make it difficult unless they had a pretty good trade; but she said it took only a little while to make enough to pay the tax. Then somebody remarked that prices had been greatly advanced; but she replied again that that made no difference ; for the person who commences using cigarettes would keep on using them even if the prices were advanced from a nickel up to a dime per package. No wonder the victim never gives it up, for it is only the opium habit under another name. We are making progress in our pure-food laws, especially here in Ohio ; but what about letting druggists and others push the opium business in the way I have indicated above, notwithstanding the fact that our schoolchildren are being ruined, body and soul, and our asylums and infirmaries are being constantly recruited at an alarming rate by cigarettes?

FOR SALE.—25 Sash, glazed, 3½ x 8 ft. x 2 inch check, glass 12 x 12; also 12 sash, regular make, ¾ x 6 in. x 1½; about 1000 ft. 12 x 12 glass, also sash-bars for same. A lot of pipe ¾ in., 1 in., 1¼ in., and some 2 and 3 in.; also a lot of pots, 4, 4½, 5, and 6 in. Will sell for one-half price of new.

J. S. WARNER, Medina, Ohio.

What They Say about the Pouder Honey-jars.

TACOMA, WASH.

Walter S. Pouder, Indianapolis, Ind.:

Dear Sir:—Last shipment of jars arrived o.k. There was not one per cent loss on the entire shipment, and have never had more than two per cent loss on any shipment from you. I consider your method of crating the best that I have ever seen.

Yours truly, G. D. LITTOOY.

HONEY-JARS.

1-lb., with Corks, $4.50 per Gr.
Labels for same, 60c per gross.
Cartons, Shipping-cases,
and every thing in the Apiarian line.
Catalog free.

Apiary,
Glen Cove, L. I.

I. J. STRINGHAM,
105 Park Pl., N. Y. City.

FARM BEE-KEEPING.

The only bee-paper in the United States edited exclusively in the interest of the farmer bee-keeper and the beginner is THE BUSY BEE, published by

Emerson T. Abbott, St. Joseph, Mo.

Write for *free sample copy now.*

QUEENS BY RETURN MAIL.

Daughters of best imported queen mother, warranted purely mated to drones of imported stock from a different source; hence, a direct cross. 12 years as a honey-producer on a large scale has taught me what good queens mean to the producer, as well as how to rear them. Price of queens, 50c each. Safe delivery and satisfaction, or money refunded.

L. H. ROBEY, Worthington, W. Va.

QUEENS, Either 3 or 5 banded, 60 cents each; 6 for $3.00 Nuclei and supplies cheap.

CHAS. H. THIES, Steeleville. Ill.

Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

25 Cts. PER YEAR!

for the best agricultural and stock-breeders' paper published,

Stuart's Agriculturist.

Agents wanted! Bicycles, etc., free. Address

WHITWORTH BROS.,
Printers & Pub'rs, 60 High St., Cleveland, O.

Gleanings for One Whole Year, 25 Cents.

Will furnish GLEANINGS one year—24 issues—to a new subscriber, and one untested Italian queen, during the month of October only, for the price of the journal alone—namely, $1.00. These queens are catalogued at 75 cents each. By sending us $1.00 you will get the queen, 75 cents, and the journal for only 25 cents.

If you are already a subscriber, and would like to get the queen, send us $1.00 with a new name for GLEANINGS, and we will send the queen to you, and the journal to the new name sent.

Remember this offer is good only until Nov. 1.

The A. I. Root Co., Medina, Ohio.

THE A. I. ROOT CO'S
Shipping-cases for Honey,
AT THEIR PRICES—THE FINEST MADE.
CASH FOR BEESWAX.
M. H. HUNT, Bell Branch, Mich.

MAKE MONEY! YES. HOW?

With poultry, bees, and flowers. Particulars free.

COOK BROS.,
Scio, - Harrison County, - Ohio.

No cheap Queens to sell; but the best.

Golden 5 band, or 3 band from imported mother. Untested, 75 cts.; tested, $1.00.

L. BEAUCHAMP, Box 613, San Antonio, Texas.

Queens, Untested queens, 50c each; tested, 75c; Breeders, $2. Either leather or golden. My golden breeders breed all 5-banded bees.

W. H. LAWS, - Lavaca, Ark.

QUEENS. Untested golden beauties, or 3-banded, 45 cents each. Write for wholesale prices. I have good bees. To be convinced, order a sample queen. This is a money-order postoffice.

DANIEL WURTH, Falmouth, Rush Co., Ind.

FOR SALE.—500 very choice Italian red-clover queens at 50 cts. each; ½ doz., $2.80; tested, 75 cts. Our bees made 50 lbs. per colony of red-clover honey this season. 15 years' experience in queen-rearing.

LEININGER BROS., Ft. Jennings, Ohio

FOR SALE.—Italian queens, 50 cents each.

MRS. A. A. SIMPSON, Swarts, Greene Co., Pa.

HIGH PRESSURE GARDENING

GARDENING FOR OCTOBER.

Well, friends, gardening in the open air is pretty much over unless it is late-sown wheat and rye; but this is farming rather than gardening. Spinach, dwarf Essex rape, and a few other hardy vegetables, may be put out yet, but it is a little unsafe. Onion-sets have sometimes done very well, especially the Early Pearl when planted early in October. A good many growers recommend putting out strawberry-plants during this month; but unless you have learned the trade, and take some special precaution not to have them thrown out by the frost, you will waste your time and plants. If you have a soil that never throws plants out by freezing, or if you cover your plants with mulch, and do it just right, you may not lose many. If you have some sashes to put over your plants set out in beds, of course you can go on pushing them through October and perhaps November. Asparagus-roots may be planted, but I believe most people have decided to put it off till spring. Raspberries, blackberries, and all kinds of fruits do as well as, and many times a great deal better than, when planted in the spring. Horseradish-roots will always grow if planted at any time when the ground is not frozen. Fix up your hot-beds, greenhouses, and cold-frames, if you have them; and if you have not, and love gardening, I would advise you to get a sash or two, and see what wonderful things can be done by a little protection. Try a few first; and if it requires more care than you are willing to give during the sudden changes of weather, then do not invest any further. Better gather your crops if you have not done so, then slick up the garden and sow it to rye; or if you do not care to do that, ridge up at least a part of it, and get ready to plant early stuff on the top of the ridges the first thing in the spring.

THE CRANDALL CURRANT.

We come to the conclusion that the Crandall currant is good for pies, jelly, etc., the same as the common currant, but the skin is rather tough. Last year we made a drink which was right good. We made it like wine, only we did not let it ferment. We canned it like fruit, and it kept nice and sweet.

Berkeley Springs, W. Va., Aug. 1. H. L. Wise.

MAKING A BREED WEEDER OUT OF A GARDEN-PLOW.

Friend A. I.:—Last year I bought a garden-plow, a one-wheeled affair; but the wheel is larger than those seen in the market, and is so arranged that pressing on the handles tends to shoot the plow forward. I had a scuffle-hoe, made after the description given in Gleanings about a year ago, but I longed for one of those Z. Breed weeders. I wrote the company that I thought I could fasten the weeder part on my one-wheeled plow, and that I preferred one wheel to two, as they have it arranged. I paid them $4.50 for the fingers and head pieces, and fastened them on my plow with a single bolt. I have just plowed my peas, six inches high, with the weeder, and it did not disturb a single pea. If the weeder is used at the right time it is one of the best tools ever invented.

I am using a Breed weeder No. 9 for sweet potatoes. Don't you think we could arrange to publish a small book on sweet potatoes? I think I have it down to perfection. J. Q. Mulford.

Lebanon, O., June 16.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

REPORT ON POTATOES FOR 1897.

At present writing, prices of potatoes for table use are from 75 cts. to $1.00; and in a good many places in the United States you can not get nice potatoes at the groceries for less than about $1.00 a bushel, and they are worth from 50 to 75 cts. at wholesale.

Somewhat to our surprise, the Freeman this year has given us not only our handsomest and best-eating potatoes, but the yield has been almost as great as the Thoroughbreds, and the Freemans are the cleanest and nicest-looking potatoes of any thing we have tested. Quite a few have found fault because Terry and Maule gave the Freeman such a boom. My opinion is that these two friends of ours deserve the thanks of the whole wide world for thoroughly disseminating so valuable a potato. The New Queen is quite a little earlier than the Freeman. Indeed, it gives potatoes of fair size for table use about as early as any potato I know of, unless it be the White Bliss Triumph. The latter has not done so well with us this season as last. A great many of our potatoes have been scabby—that is, here on our own grounds—probably owing to the large amount of stable manure we have used on our soil. The potatoes grown for us, however, by Wilbur Fenn and others in Summit Co., are free from scab, and beautiful in shape, and fully up to their usual standard, although perhaps not as large as usual. The Sir William is medium early, but too prongy to please the average market. It certainly can not compare in looks with the Freeman; but it has again shown the peculiarity of being dry and mealy, even when dug when half grown. The Monroe Seedling, when grown by Wilbur Fenn, is almost as handsome in shape as the Freeman, and comes pretty close to it in quality. Manum's Enormous outyielded every thing by far (Thoroughbred next), and the quality is very good for so large a potato. It is also one of the very best keepers known, while the New Queen is perhaps the poorest keeper of all, because it will sprout when it is springtime, no matter where you put it. The New Craig is not yet ready to dig.

SPECIAL NOTICES FROM BUSINESS MANAGER

COMB FOUNDATION AT A DISCOUNT.

In order to reduce stock of comb foundation in the hands of dealers and branch offices, we offer, for the month of October only, 6 per cent discount from our prices of foundation, both wholesale and retail. You can order from St. Paul, Minn., office at 1024 Miss. St., or Chicago office at 118 Michigan St., or Syracuse, N. Y., office at 1635 West Genesee St. Those on the north Pacific coast can also secure foundation from Buell Lamberson, 180, 182 Front St., Portland, Oreg., at the same reduction from his prices. Remember, this offer is only for orders received during October which call attention to this offer, and for present stock while it lasts, and not on foundation made to order. Price of foundation will be no lower next season. If you know pretty nearly what you will need, here is an opportunity to save some money by ordering now.

HONEY MARKET.

With the coming of cooler weather our honey trade has taken quite a start, and orders for both comb and extracted are coming in freely. We offer in 60-lb. cans, 2 in a case, water-white California honey, or clover and basswood, or willow-herb, at 6½c per lb.; light amber California honey at 6c. Any of the above in 5-case lots, ½c per lb. less. Two barrels of tupelo honey still on hand at 6c. Barrels hold about 350 lbs. each.

We have on hand here, and have engaged at various points in different near-by States, quantities of choice comb honey, gathered mostly from clover. We offer it at the following prices in lots of 200 lbs. or more: Fancy at 13c per lb.; A No. 1 at 12c. We sometimes have a No. 2 white which we can furnish at 11c. Buckwheat honey in the same grades at 2c per lb. less. Write us for prices on lots of 500 lbs. or more. We are often able to ship direct from the producers, saving our customers considerable in freight. Parties having honey to sell will do well to ask for a copy of our grading-rules, and directions for shipping comb honey. We seldom have any report of breakage when put up according to our method. If you wish us to make an offer on your honey, tell us how much you have of each grade, whether light or full weight sections, style of cases used, and from what source gathered.

CONVENTION NOTICE.

The Southwestern Wisconsin Bee-keepers' Association will meet in the G. A. R. hall, in Boscobel, Wis., Oct. 6 and 7, 1897. All who are interested in bees can not afford to miss this opportunity. Come and bring your friends. Send for full program to N. E. France, President, Platteville, Wis.

KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS is getting better and better. I take it for my boy. He has 50 hives. He is 18 years old. We all like it for its good reading.

New Brunswick, N. J., Sept. 8. ANTHONY SCOTT.

I feel lost without GLEANINGS, and do not know why I discontinued it. Inclosed find $1.00, for which renew my subscription from the date of discontinuance. Send all of the back numbers.

Fairmount, N. Y., Aug. 29. HOWARD C. MILLS.

A KIND WORD, AND SOMETHING MORE.

I might say that in the past two weeks I have been reading some of your back numbers; and I never was interested in any thing so much in my life; and another good thing it has done for me already—I have quit using tobacco after using it for 20 years, and I am determined to use it no more.

Streator, Ill., Sept. 10. WILLIAM DICKINSON.

A KIND WORD FROM AN OLD BEE-JOURNAL EDITOR.

Till last year I always had the —— sent me, but it was cut off. You (A. I. R.) always said it paid to be liberal. A bee-keeper called yesterday and wanted me to say which of the bee-papers is the better. I replied that every thing in the bee-line worth printing could be found in GLEANINGS. It takes Dr. Miller to catch on them. I always read "Straws" for views.

Wenham, Mass., Aug. 9. H. ALLEY.

I have to thank A. I. Root for one of the greatest pleasures of my life; for in the winter of 1893, when down with an attack of the grip, I answered your advertisement in (I think it was) *Farm and Home*, and sent for your catalog and A B C. The result was bee fever; and as my father had two colonies of bees in box hives I got them from him and at once sent for your "beginner's outfit." In my second year with bees I sold $100 worth of honey; and though the two succeeding years have been failures I am as much interested as ever, and I hope to see the year when I will make more from my bees than from my farm.

Lungrey, Quebec, Can., Aug. 18 E. W. EVANS.

CHAS. ISRAEL & BROS.,
486, 488 & 490 Canal St., Corner Watts St., N. Y.
Honey and Beeswax.
Liberal Advances Made on Consignments.
Wholesale Dealers and Commission Merchants.
Established 1875.

SWEET-CLOVER SEED in the hull, raised this season, 1897, at 4 cts. per pound. Address
JOSEPH SHAW, Box 64, Strong City, Kan.

TREES AT VERY LOW PRICES. Write now for new fall catalog. It's free and will tell you about the stock we grow and our prices.
ESTABLISHED 1869. 150 ACRES.
THE GEORGE A. SWEET NURSERY CO.,
BOX 1837. DANSVILLE, N. Y.

Gleanings at Reduced Rates.

With a view to encouraging membership to all kinds of bee-keepers' associations whatsoever, local or otherwise, we have decided to offer GLEANINGS at 75 cts. per name to members of such organizations. Old or new subscribers may take advantage of this offer; but in the case of the old, all back subscriptions must be paid up before the 75-cent rate for a year will be allowed; otherwise only nine months will be credited.

We must either require all subscriptions at this reduced rate to come through the secretary, or we must have evidence of some sort that you belong to some bee-keepers' society. Simply a line from the secretary, stating that you are a member in regular standing, will suffice. At your next annual meeting, bear this in mind; and if you wish to become a subscriber to this journal, hand 75 cts. to your secretary, and when that amount is received by us your name will be placed on our subscription list for 12 months.

If you do not now belong to any association, send $1.75 to us or to Secretary Dr. A. B. Mason, of the United States Bee-keepers' Union, at Toledo, Station B. This will entitle you to a year's membership and protection in the Union, and one year's subscription to this journal.

The A. I. Root Company,
Medina, Ohio.

Wants and Exchange Department.

WANTED.—To exchange 140 colonies of bees, with all fixtures belonging to a first-class apiary, for good horses and mules.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange 28 new volumes Encyclopedia Britannica for honey. O. H. HYATT,
Shenandoah, Page Co., Iowa.

WANTED.—To exchange 16-section non-drip cases at Root's prices, laid down at your station, for fancy comb honey at prices to suit the times. Also second-hand 60-lb. cans, 2 in a case, valued at 25 cts. per can, freight paid, for gilt-edged extracted honey. Special price on quantity lots. B. WALKER,
Evart, Mich., or 541 Van Buren St., Chicago.

WANTED.—To exchange Dovetailed hives and Hoffman frames KD, at my catalog prices, for good extracted honey. Send sample and best price.
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WANTED.—To exchange for white extracted honey, or beeswax, one 1897 high-grade Road King bicycle, as good as new. N. E. BOOMHOWER,
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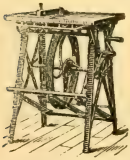

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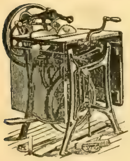

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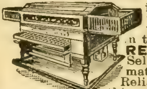

in all the many shows in which it has participated, there must be something in the superiority claims of the **RELIABLE INCUBATOR** Self regulating, entirely automatic, you put in the eggs, the Reliable does the rest. All about this and many things of value to the poultry man in our new book. Send 10 cts. for it.
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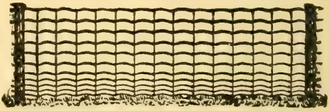

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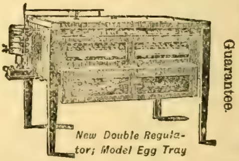

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GEO. J. NISSLY, SALINE, MICH.

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Honey Column.

CITY MARKETS.

MILWAUKEE.—Our honey market is in very healthy condition, and receipts are good and quality generally nice, although some extracted seems disposed to work every day in the week, which shows it was not brought up under proper regulations—moral. The comb honey is improved in quality over former years. Demand is very fair, and think we can give encouragement to our shippers that good results will follow shipments sent to us. We quote No. 1 white 1-lb. sections, 12@13; 1-lb. sections, old, 8@11c; dark, 1-lb., old, 8@10; dark, 1-lb., new, 8@10. Extracted, white, in bbls., kegs, and pails, 5@6; dark, 4@5. Beeswax, 25c.

A. V. BISHOP,
Oct. 7. Milwaukee, Wis.

PHILADELPHIA.—Honey coming in freely, and some call for comb, but the hot weather of the last few days stops sales somewhat. We quote fancy white comb 13½; No. 1 white, 11@12; no dark comb in yet; white extracted, 5½@6; amber, 4@5; beeswax, 25. We are producers of honey; do not handle on commission.

WM. A. SELSER,
Oct. 11. 10 Vine St., Philadelphia, Pa.

NEW YORK.—The demand for fancy white and fancy buckwheat is good, while off grades are somewhat neglected. We quote fancy white, 12@13; No. 1 white, 10@11; fair white, 9@10; buckwheat, 8@9; extracted California white, 5@5½; light amber, 4½@5; white clover and basswood, 5@5½; buckwheat, 4. Southern in good demand now at 50c a gal. Beeswax firm at 26@27.

HILDRETH BROS. & SEGELKEN,
Oct. 7. 120-122 W. Broadway, New York.

CLEVELAND.—We quote selling to-day as follows: Fancy white, 12½@13; No. 1 white, 11@12; fancy amber, 10; No. 1 amber, 8@9; buckwheat, 6; fancy white extracted, 6½; beeswax, 25@28.

A. B. WILLIAMS & Co.,
Oct. 6. 80-82 Broadway, Cleveland, Ohio.

ALBANY.—There is now quite a large stock of comb honey on our market, as is usually the case in October, but most of it is buckwheat and second-grade clover. There is not much fancy clover. We make no change in quotations. Fancy white 12@13; fair to good, 10@11; buckwheat, 8@9. There is quite a lot of dark extracted coming forward but not much call for it yet at 4@5.

CHAS. MCCULLOCH & Co.,
Oct. 8. Albany, N. Y.

CINCINNATI.—Demand for honey in all its branches has been extremely dull for the last four or five weeks. Weather too warm or too much fruit on the market, one or both, were to blame, no doubt. We quote 3½@6 as the range of prices for extracted, and 10@13 for best white comb honey, according to quality. There is a good demand for beeswax at 20@25 for good to choice yellow.

CHAS. F. MUTH & SON,
Oct. 7. Cincinnati, O.

SPRINGFIELD. — Fancy white clover, 12c; choice white clover, 10; no buckwheat in.

PERKINS & HATCH,
Oct. 7. Springfield, Mass.

DETROIT.—Best comb honey, 11@12; other grades, 9@10½; extracted white, 5@5½; but little call for dark grades; beeswax, 25@26.

Oct. 7. M. H. HUNT, Bell Branch, Mich.

COLUMBUS.—Demand very good for white clover. Fancy 12½@13; No. 1, 11@11½. We are in the market for white clover in 12 and 24 section cases.

THE COLUMBUS COMMISSION & STORAGE CO.,
Oct. 7. 409-413 N. High St., Columbus, O.

MINNEAPOLIS.—Fancy white-clover comb, good sale at 9½@10½; other kinds accordingly. This is a good place for the right kind of honey. Have moved a large quantity during the last two weeks. Extracted (best) 5@5½; light demand for same.

S. H. HALL & Co.,
Oct. 7. Minneapolis, Minn.

KANSAS CITY.—We quote No. 1 white comb, 11@12; No. 1 amber, 10@11; No. 2 amber, 8@9; extracted white 5½@6; extracted dark, 4½@5; beeswax, 22@25.

C. C. CLEMONS & Co.,
Oct. 8. Kansas City, Mo.

BOSTON.—We quote you our honey market as follows: Fancy white, 13; No. 1 white, 11@12; No. 2 white, 9; white extracted, 6@6½; light amber, 5@5¾; beeswax, 27, and wanted.

BLAKE, SCOTT & LEE,
Oct. 7. Boston, Mass.

CHICAGO.—Fancy white comb, 11@12; good white 9@10; best amber, 8@9; dark grades, 7@8; extracted white, 5@6; amber, 4@5; dark, 3@4; beeswax, 26@27. The receipts are now quite large, and it is chiefly that which has been secured from clover, very little from the asters, and some buckwheat.

R. A. BURNETT & Co.,
Oct. 8. 163 South Water St., Chicago, Ill.

FOR SALE. — 25 bbls. extracted pure white-clover honey, very light in color, and of finest quality, at prices as cheap as the cheapest, quality of goods considered. Can put it up in any style of package. Write for price, stating quantity desired.

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—A lot of good extracted clover honey in 60-lb. cans. JNO. A. THORNTON, Lima, Ills.

WANTED.—To buy quantity lots of fancy comb honey in non-drip cases. B. WALKER,
Evart, Mich., or 541 Van Buren St., Chicago.

FOR SALE.—Alfalfa honey, light amber, in carload lots. 3¼ cts. per lb.; sample, 10 cts.

JOHN NIPPERT, Box 1051, Phœnix, Arizona.

FOR SALE.—Pure honey.—Clover, extracted, 6½ cts. per lb. Buckwheat, extracted, 4½ cts. per lb.

I. J. STRINGHAM, 105 Park Place, N. Y. City.

FOR SALE.—Buckwheat extracted in 50 and 210 lb. packages f. o. b. for 4¼c a lb.

W. LAMAR COGGSHALL, West Groton, N. Y.

FOR SALE.—Choice honey, 6000 lbs. in well-filled sections, at 9½c per lb.; extracted, 4½.

W. C. GATHRIGHT, Dona Ana, N. M.

WANTED.—Parties having fancy or No. 1 clover honey to quote prices.

F. H. MCFARLAND, Hyde Park, Vt.

WANTED.—Shipments of comb and extracted honey. Can dispose of several hundred pounds of first and second grades. Can give good reference. Write me what you have and the price asked before making shipment. D. N. RITCHEY, Black Lick, Ohio.

FOR SALE.—Tons of honey, comb, at 7 to 12c per lb. Inclose stamps for samples of extracted at 4 to 6c. in 160-lb. kegs, f. o. b. N. L. STEVENS, Venice, N. Y.

FARM BEE-KEEPING.

The only bee-paper in the United States edited exclusively in the interest of the farmer bee-keeper and the beginner is THE BUSY BEE, published by

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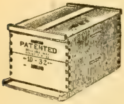
I have a large number of nuclei containing fine tested Italian queens of this year's rearing, and have decided to use them in helping to build up the circulation of the **Review**; hence offer a queen and the **Review** one year to *new* subscribers for only $1.50. **Review** alone, $1.00; queen alone, $1.00. If several queens are wanted, write, and the price will be made according to the number. As a rule, orders are filled by return mail, and there is never a delay of more than three or four days, and that on large orders.

W. Z. HUTCHINSON, Flint, Mich.



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Smoke Engine (largest smoker made.)	4-inch	stove.	Doz.	$13.00;	each, by mail,	$1.50
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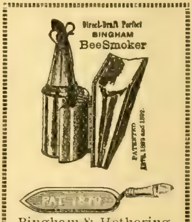
Large	2½-in.	"	"	5.00;	"	.90
Plain	2-in.	"	"	4.75;	"	.70
Little Wonder (wt. 10 oz.)	2-in.	"	"	4.50;	"	.60
Honey-knife			"	6.00;	"	.80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. Eagerty, Cuba, Kansas.



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T. F. BINGHAM, Farwell, Michigan.

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A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO.

VOL. XXV. OCT. 15, 1897. NO. 20.

STRAY STRAWS

FROM DR. C. C. MILLER.

I SEE ON PAGE 709 that the president read one of R. L. Taylor's papers. That makes me think more of McKinley than ever.

IT DOESN'T SEEM such a great many years since all our previous lighting-arrangements had to be thrown away to make way for something to burn kerosene, and now comes that new light mentioned on p. 713 to knock kerosene out.

WANTED! A plan to get a colony of bees to empty the honey out of a super without allowing bees of other colonies to touch it. [While you are putting in your specifications, doctor, please add that those same bees must put it in the brood-nest below.—ED.]

YOU SAY, MR. EDITOR, that I haven't told you whether I had a good honey year. I've been so busy taking care of the crop I haven't had time to tell you. But it's been a grand season. Tell you more about it later. [Good! I feel like throwing up my hat.—ED.]

WHITE DUTCH CLOVER is pretty much the same thing as white clover, according to A. I. Root, p. 706. Friend Root, may be you'd be willing to oblige an old friend by dropping out that "pretty much," or else telling the difference between white and white Dutch. [I do not believe "A. I. R." can. To my eyes they look exactly alike. "Pretty much," I suppose, slipped in accidentally.—ED.]

FRIEND A. I. ROOT, you touched on one of the crying evils of the day, p. 715. Tipping is a kind of stealing that takes the manhood out of the recipient, but after all isn't the fault with the tipper? If all had the backbone you had, and stood out against it, the practice would soon be stopped. But one is all broken up over deciding what's the right thing to do on a Pullman sleeper, when one knows the poor porter will starve if one doesn't tip him.

USE FOR PROPOLIS. A California writer in *American Bee Journal* says he saves up clean propolis, and always has a ball of it on hand. When about to hive a swarm, he rubs the inside of the hive vigorously with the propolis for a minute *immediately* before hiving the bees, and has not lost a swarm for many years. [It is possible that propolis may give a hive somewhat of a homelike smell; but I should really expect moonshine to have just as much effect.—ED.]

WHY ARE FREAKS with eyes of different colors found only among drones, and not among queens and workers? [We know that the males in the bird kingdom are usually more highly colored and in other ways handsomer than the females. In the case of the birds we would suppose that the high colors were intended to attract the attention of their more somber-colored sisters; but it would be a pretty big stretch of fancy to make a like comparison in the case of drones and queens. I give it up.—ED.]

SAY, ERNEST, wouldn't you like to see the finest show of horses ever gotten together? That's what's expected to be at Chicago at the time of the Northwestern bee convention. Now, what more can I say to coax you to be on hand Nov. 10, 11? Plenty of beefsteak too. [You will have to trot out something better than horses to get me to come. I used to be quite a horse-crank; but the bicycle has completely supplanted the horse in my affection. Beefsteak — well, yes. That is appetizing. Well, what else have you to attract a Buckeye chap just like me?—ED.]

"BEE CRANK" says, in *Southland Queen*, that he saves money by using extra-thin foundation in brood-frames. Fasten the foundation in frames, hang two or three frames in rather light colonies that are building comb, and as soon as they draw out the foundation it is safe to hive swarms on. [I should not be surprised if Bee Crank were right; but the handling of those frames, putting them into and taking them out of light colonies for the sake of getting the bees to fasten and stiffen the foundation, would be a great deal of extra work; and if time is worth any thing, brood foundation at a slight additional cost would be cheaper in the end.—ED.]

"PERHAPS if an experiment station could take hold of it, something might be done."—*Editor, p. 695.* You're with Prof. Cook in thinking no one but some scientific fellow can breed for improvement. Did the experiment stations give us five-banders? Have they given us any improvements in bees? Have all the stations put together done as much "along this line" as Doolittle? Say, what'll you take for a good glossometer? [Doolittle—well, I would make an exception in favor of him. He has already bred light-colored bees and yellow Italians that he says will cap honey as white as blacks. Now tell him to stretch the tongues of those same bees and we will make a glossometer to measure them.—Ed.]

Herr Gravenhorst says that, after having tried hundreds of cases year after year, with half his swarms supplied with starters at the beginning, and full sheets of foundation later, and the other half with full sheets from the start, he is thoroughly convinced that, on the average, they do better to begin with the starters. [Gravenhorst is the editor of the *Illustrierte Bienenzeitung* (Illustrated Bee-journal) published at Braunschweig, Germany, and a bee-keeper of international reputation. If he sees this I hope he will tell us how he came to this conclusion. If he is right, then a great saving of foundation could be effected. It would be a bad thing for the supply-dealer, but a good thing for the bee-keeper. Let us have the truth, anyhow.—Ed.]

L. L. Skaggs thinks it a great mistake to suppose that bees do not thin the septum of heavy foundation. He made a quantity of foundation which weighed four sheets to the pound, and the bees thinned it so that one could hardly tell the difference, when chewing it, from natural comb. They used the extra wax to build the cell-walls.—*Southland Queen.* But it doesn't always work that way. [I do not think it is claimed—at least we have not done so—that the bees *never* thin the bases of foundation; but I think that, as a general rule, they do not; and we might say they never do if honey is coming in fast; but they almost invariably thin down the walls, but do less of this thinning if honey is coming in rapidly.—Ed.]

P. A. Sioli says in *American Bee Journal*, that he thinks the queen has an influence over the morals and manners of the workers. He had some vicious blacks that were lazy, and formed a nucleus from them, giving the nucleus an Italian queen, and the blacks of that nucleus at once became gentle and industrious. A more marked case came in my experience, in which a queen was killed because her bees were so cross, and the temper of the bees seemed to be changed utterly by a change of queens, and that, too, before the old bees had time to die off. [This question was discussed a few years ago, and the general verdict then seemed to be that the queen did seem to have quite a toning-down effect upon the bees of the hives, even though they were not her daughters.—Ed.]

C. P. Dadant, basing his belief on 25 years' experience with a number of out-apiaries, is emphatic that bees do not work to any advantage more than two miles from home. They travel furthest where the country is smoothest, with no hills to climb or heavy timber to pass.—*American Bee Journal.* [My limited experience goes to show that Dadant is about right. The bees at our basswood orchard are only about a mile and a half in a bee-line from our home apiary; and yet our home bees have never flown to the basswoods, when in bloom. I do not mean to say that the bees have *never* gone over a mile and a half; but as long as they can get plenty of nectar in short ranges they will not go long distances. If forage is scarce and at long range, bees will, of course, take long flights. All depends upon locality, character and extent of the honey-flow, and the sources of nectar.—Ed.]

The old-fashioned plan of raising a hive half an inch or an inch on four blocks during hot weather seems coming again into favor. Some are troubled with the thought that the bees are hindered about getting on the combs, there being no place for them to climb up except at the four corners. I don't believe it's worth while to worry over the matter so long as the bees don't, and in actual practice you don't find a lot of bees waiting for a climbing-place. [I do not believe that bee-keepers realize the advantage there is in having plenty of space under the brood-frames, with a deep entrance, during the honey-flow, when the weather is hot. I am not a prophet nor the son of a prophet, but I believe the time is coming when wide deep entrances will be used exclusively; and I have a feeling that swarming will be very materially reduced thereby. Of course, when the honey-flow is over, and robbing is the order of the day, then it may be advisable to contract the entrances down. Aside from the trouble of swarming, deep entrances would prevent loafing to a great extent, and to a like extent the melting-down of combs. Keep on talking about and considering the idea, brethren, until bee-keepers begin to "sense" it, as Samantha Allen would say.—Ed.]

"I never saw a queen pipe yet but there was a decidedly tremulous motion to her wings," quoth ye editor, p. 694. I never saw a horse neigh but there was a decidedly tremulous motion to his tail. But cut off the tail and the horse will neigh just as well; and cut off the wings, and the queen will pipe just as well. Frank Cheshire says, page 157, Vol. II., speaking of piping, "It is certain that the wings are not concerned in its production, since queens clipped so vigorously that not a vestige of wing remains can be as noisy as others." [Cheshire's argument looks like a clincher; and while I am inclined to believe he is right, I should wish to know first whether he was taking hearsay evidence that queens would pipe when both wings are cut off close, or had actually tried the experiment himself. I may have to, but I do not want to give up, that the wings have nothing to do with the matter until I have tried cutting off the wings. If I should go right now into the apiary and do some close wing-clipping I might have to wait days and even months before the queen would pipe before my waiting eyes. But, say, doctor, our Ohio horses do not give a tremulous shake to their tails when they neigh, so I do not see the force of your argument; but then, your *locality* may have quite an effect upon horses' tails.—ED.]

* * *

BEE-KEEPING AS A SPECIALTY AND AS A SIDE LINE.

Changing One's Mind; Why the Professional Man and the Farmer Should Keep Bees; California Fruit-men the Friends of the Bees.

BY PROF. A. J. COOK.

Editor Gleanings:—Our good friend Dr. Miller in a recent note referred to me as having changed my mind, in that now I believe in bee-keeping for others than specialists. I have changed my mind very often, and am not a whit ashamed of the fact. Emerson says, not to change is to die. Surely one who never changes his mind must be very inconsequential indeed. But in this matter I have not changed my mind; for of old I used to argue stoutly with such staunch defenders of the faith as Bingham and Heddon, they contending that only specialists should engage in the pursuit, while I was as emphatic in the position that the ranks should be swelled by any who would go at the work earnestly, intelligently, and with the persistence that could not fail. Later I had the same discussion with our friends Taylor and Hutchinson. I always believed I had the weight of the argument on my side, and still think so, and hence have not changed my mind at all.

One fact alone, it seems to me, settles the matter on my side, to wit: Some of the very brightest and most successful apiarists have not been specialists, but, rather, amateurs; or at least the bee-keeping part of their work was their avocation, and not the main part of their work. Langstroth, Bingham, the Oatmans, and even the senior editor of GLEANINGS, became noted as bee-keepers before it was their leading pursuit. I believe that the majority of those who have had the best success, and have done the most for the pursuit, have been those who have made bee culture only the pick-up work. I perhaps feel more sensitive regarding this matter, as bee-keeping has never been my leading pursuit; yet it has been a very great pleasure to me, and a source of no little profit as well. I know of several farmers who have cared for their farms well, and at the same time have made large profits from bees. I have a brother who has a large well-tilled farm; and although he cares for the farm all himself, yet he keeps a good-sized apiary, and for three successive years he made more from his bees than from all the rest of his farm. With such examples before us, is there any wonder that some of us believe that others than specialists may well keep bees? I am sure that my brother would laugh at such a proposition.

The fact that the pursuit of bee-keeping does not occupy one all the time, and the further fact that, in off years, there is little or nothing to do, makes it all the more desirable that bee-keeping alone should not occupy one's entire time. By a little planning one can combine bee-keeping with some other pursuit, so that neither will interfere with the other. This not only has the merit of keeping one well employed all the time, but also gives variety to the work, and so makes life more enjoyable. A variety also is recreative, and so rests one and makes his work more productive, and at the same time adds greatly to one's health and vigor.

In the face of the many noted examples, I need not say that it is quite possible for one to master bee culture, even though he is deeply absorbed in other work. The very study required not only brings keenest pleasure, but often gives a discipline that makes one more capable in other lines of work. I am sure that there are lawyers, doctors, etc., who do better work in their practice because of the restful pleasure that they get in the care of their bees. I have known some remarkable cases of just this kind. A perplexing law case is not a very effective sedative. Any thing that will help one to forget the disquieting experiences of the daily life will add to one's effectiveness as well as to his length of days.

I have often worked in my study until the weariness was overpowering, and went forth to work in the apiary, when shortly I had forgotten that I was weary, and went back to my study able to do what would have been otherwise quite impossible except for the restful pleasure received in the apiary.

There is another argument, from the standpoint of economy, that should have some weight. The bees are needed in every garden and orchard to do the work of pollination. If the specialists are depended upon, many a fruit-grower will suffer. Not a few California fruit-growers now arrange to have bees in the orchard. They find that this pays well. The pomologist may well study to care for bees, and then he may be independent, and keep his own bees.

The argument on the other side is, that the specialist will learn and practice better methods, and so will do nothing that will harm the pursuit. But does he do better? I have been in a great many bee-yards, and I have seen as much perfection among the so-called amateurs as among the specialists.

In view of all these facts, I am, as I have always been, in favor that all who feel moved to do so, and will take hold of the matter with vigor, shall embark in the bee business.

NOTES.

The fruit-men of California have ceased to denounce the bees. We rarely hear other than praise of the little honey-gatherers.

The present season has been a very good one in Southern California. Many bee-keepers with hundreds of colonies all in one place have taken over 100 lbs. of finest honey from each colony.

Claremont, Cal., Sept. 25.

[I most sincerely admire that spirit in any man who is frank enough to admit that he is liable to error, and is therefore not only willing to change his preconceived notions, but is willing to come out and confess it. Somehow I have confidence in such a man.

In regard to specialists, if accurate figures could be gathered I believe that 90 per cent—yes, 99 per cent—of all the honey that is produced is by the class that you have so ably defended. At the Buffalo convention, made up of some of the most extensive honey-producers of the world, the request was made for all to rise to their feet who made bee-keeping their sole means of livelihood. Scarcely one arose. To my personal knowledge, there were farmer bee-keepers present at that meeting who produced anywhere from 40,000 to 75,000 pounds of honey in a single season. One might almost call them specialists; but the fact remains that they are also quite extensively engaged in farming. In fact, when one goes by their places, as I have recently done, the big bank barns, broad acres of wheat and corn, and flocks of sheep, are more suggestive of agriculture than of apiculture.

But Prof. Cook very properly is urging the claims of the small bee-keeper who takes up bee-keeping as a recreation, as well as a business that will yield some revenue. Many and many a professional man would be broken down by nervous prostration were it not that he could rest his tired brain by turning it now and then to something else entirely different from his main line of work. A very large number of such long for the time when they will be able to go on to a farm; but the time never comes, for the very reason that they must leave town and quit their professional work, which they are loath to do. But bee-keeping, if they only know it, is a side issue that they can carry on without moving from town; and their back yards will probably give them all the room they require. It is from this class we find some of our brightest bee-keepers.

The question is asked a good many times, "Would you advise me to give up my business and make bee-keeping my sole means of livelihood?" We almost invariably reply something after this fashion: "The bee business is too uncertain. Stick to your life work, and make bee-keeping a side issue; and then if you have a series of poor years for the bees you will not be bankrupt. Specialties in trade are all right in their place; but specialties in rural pursuits are a little risky. Where there is one Terry who can make potato-growing a specialty and a success, there are thousands who will do better to carry on mixed farming. Where there is an Elwood or a Hetherington or a McIntyre who makes bees a sole means of livelihood, and is successful at it, there are thousands who would do better to carry on bee-keeping in connection with some other pursuit."

Dr. C. C. Miller comes very near being a specialist; but if one were to ask him whether his bees gained for him all his board and lodging, he would say no. He dabbles a little in farming and a good deal in literary work. His pen (or, rather, his typewriter) consumes a good part of his time. Whether his literary work nets him as much as his bees is doubtful.—Ed.]

BREEDING FOR LONG TONGUES.

Square Bottom-bars Not Satisfactory, and Why.

BY J. O. GRIMSLEY.

I have just finished reading Gleanings for Sept. 15th — have read *every word* in it, and can't help expressing my appreciation of such a valuable journal. The truth is, Gleanings improves with each number. But I think I'd better stop this "flattery," as some may construe it, and get down to what I wanted to talk about. There were two or three things I was particularly interested in, as my mind had been "hungry" for something on these subjects.

"Breeding for long tongues." Why not? I think Prof. Cook is talking just right; and all that we really need now is those "tongue-gauges" he mentions. But who will get them up? and what will be the cost? Suppose all our queen-breeders (or, say, the members of the National Queen-breeders' Union, now in course of organization) were prepared to advertise daughters of "A No. 1" breeders, whose tongues measure, say, 4.9, 5.3, or whatever number of millimeters it is. We often see advertisements of "red-clover" queens, which, in my opinion, are very delusive. I am confident there is a great difference in the length of the tongues of bees, and now let us not permit so valuable a suggestion to die in the "pupa."

I see considerable said about "bottom-bars." Some say *square*, some say "nix." On that line I want to give my experience, although it may not be so extensive as that of some of the veterans. The first bottom-bars I ever used were square—⅜—and I thought they were *the* thing; but the truth is, if the hive were perfectly level (as it should be) the combs were *never* built to the bottom-bar. If one side of the hive chanced to be lower than the other, the bees would build the comb down past the bottom-bar, and would nearly always fasten it to the side; but I don't want those "whopper-jawed" combs, and I hardly think any other apiarist does if he is a good one.

My trouble did not end there. When I put on extracting-supers I soon found that, between the bottom-bars, would always be a "mess" of burr-comb; and while the bees would "build down" better in the super, it took a *perfectly* level hive (or perpendicular end-bar, if you please) in order to get a decent comb. Then came the job of (or, rather, the experience of) changing to a bottom-bar an inch wide, which has given much better satisfaction. With this I find the same difficulty in getting combs "built down" except in the super). I see that some of the readers advocate a V-shaped bottom-bar, which *may* be all right; but I want to tell you that, during the coming season, I am going to make a lot of frames (for experiment) with an inserted comb-guide, the same as is illustrated in your "all-wood frames"—the guide to be on top of the bottom-bar, of course, and the bottom-bar the same width as end-bar, which will leave only a bee-space between the bottom-bars. I am inclined to think the bees will build down to this.

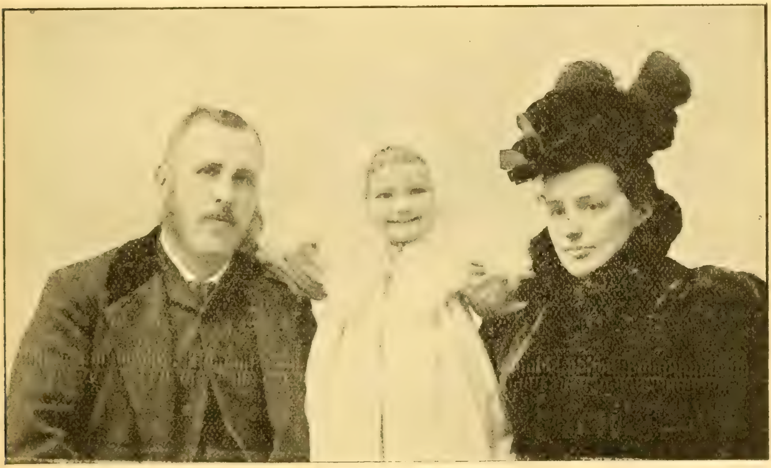
"Oh!" some will say, "that comb-guide will take up too much space."

Now, don't condemn the idea till you try it and see that it is no good. If any one has already tried this I should like to see a report of his experiment. It might save me the trouble of making a failure.

We had prospects for a real good fall honey-flow, but it was cut off by a cold rainy spell.

Byrdstown, Tenn., Sept. 23.

[Along about the middle of the summer I expressed a leaning toward square bottom-bars; but since that time I have paid particular attention to square and wide bars, as I have been looking over the hives. The former are objectionable for the very reasons you have mentioned, and I am not sorry we dropped them. A bar ¾ inch wide and ¼ inch thick suits me as well as any thing, I now think.—Ed.]



W. A. SELSER, WIFE, AND BABY.—SEE EDITORIAL PAGES.

* * *

ENEMIES AMONG THE FEATHERED TRIBES.

The Whippoorwill, or Night-hawk, of the South; King-birds.

BY T. S. FORD.

The writer has a bit of information for Southern bee-keepers that will be of interest. It is in relation to a new enemy to the apiarist. Going about dusk to the apiary this evening, for the purpose of feeding some weak colonies, my son called my attention to a hawk, as he termed it, sitting on a thistle near some hives, and asked permission to go to the house and get his gun. While the boy was away the bird made a swoop out over a hive, and I recognized him instantly as a whippoorwill. I watched him then until the bees were all in, when he took his departure, and before the gun came to hand. If some of us don't catch the yellow fever by next Monday night, this whippoorwill will pay the penalty for eating my Italians. I am ashamed to say that this is the first evening that I have been among my bees for several months; and to find a robber of this size and capacity among them is rather a surprise. It is the first time the possibility of the whippoorwill's eating bees has ever been suggested, to my knowledge; but there can be no doubt about the fact. I saw him swoop and hover in front of the hives distinctly three times; and if nothing prevents I will verify my own statement next Monday night by examining his maw.

Our whippoorwill is very different from yours, being much larger, and has a different note. He is properly a night-hawk.

Before closing this letter I will wait till Tuesday, so as to be certain.

Sept. 27.—Late this evening my son killed the whippoorwill, sure enough; and on examination of its crop we found the proof of his guilt in the shape of a wad of partially digested bees.

You will find inclosed a feather from the tail, which will give you an idea of the color of the bird. On a close examination the plumage is very beautiful, though the coloring has a somber appearance. On a careful measurement the mouth of this specimen was found to be 1¾ inches in width. The distance from the tip of one mandible to the tip of the other was 2¾ inches, when widely extended. This individual had taken up its quarters within 100 yards of the apiary, in the shade of a dense thicket, I find on inquiry, as he has been seen there many times this summer.

When mating, our whippoorwill is a noisy fellow; but after July he is perfectly silent. It was a great surprise to find this specimen here so late, as the other fly-catchers migrated some time ago.

In writing to the *American Bee Journal* last year, the habits of the king-bird, or bee-martin, being the subject, it was mentioned that, in the fall, the king-bird was good eating. My son killed some for me this fall, and a more delicious morsel was never tasted. They were loaded with fat, and on being opened gave forth the odor of the magnolia seed. This was a great surprise, inasmuch as I had supposed that they were entirely addicted to insect diet. Several weeks ago great flocks of these birds (or, rather, vast numbers of them) could be seen any fair day, being then on their journey south.

The whippoorwill was served up for supper, and was himself not at all bad, so the children report.

The writer is shut out from the world by an impassable quarantine, and can testify to a very novel experience, which, however, would not interest the readers of GLEANINGS.

Scranton, Miss. T. S. FORD.

[I do not know just how it would be in the South; but in the North but very little attention need be paid to the alleged depredations of the king-bird and other enemies of the bees among the feathered tribes, except in the queen-rearing apiaries. The use of a shotgun or small rifle to kill and scare away king-birds (as I believe them to be particularly fond of young queens when on their wedding-flight) is sometimes advisable. I remember quite distinctly that, a few years ago, we were losing quite a number of our young queens. King-birds were quite frequent visitors at our apiary. I finally shot a few of them with my rifle, and the rest disappeared. About this time our queens began to be mated again with the usual regularity. While I can not be positive that king-birds actually made away with the queens, the disappearance of the king-birds and the non-disappearance of queens was somewhat significant.—ED.]

PARAFFINE PAPER FOR COVERING SECTIONS, AND THICK TOP-FRAMES.

BY F. L. THOMPSON.

[About a year ago I reported that Mr. Danzenbaker had secured some very nice clean comb honey, the sections of which had not been touched by a scraper-knife, and which had secured the first prize at one or two of the State fairs. This happy result Mr. Danzenbaker attributed to the use of paraffine paper.

At other times I have said much in favor of thick-top frames as being especially free from burr-combs (not brace-combs). As I have been an exponent of both ideas I am very glad to give the results of an unfavorable experiment with both paraffine paper and non-burr-comb frames; and while I do not think one swallow makes a summer, I am glad to give this report prominence in our columns, without a comment. If friend Danzenbaker chooses to reply he can have space.

The report that I refer to appears in the *American Bee Journal*, page 677, and is as follows:—ED.]

Noticing that sections which have been covered with paraffine paper were said to be perfectly free from propolis, and even took prizes at various fairs, I procured a number of sheets and applied them according to directions. During the early part of the season the results were pretty fair, though the sections were far from being free of propolis, even on the top edges. Still, the tops between the edges were perfectly fresh and bright when the sections were removed, forming a marked contrast to other sections which had been covered with a ¼-inch "layer of air."

Later in the season the bees plastered propolis just as freely at the junction of the paper with the section edges as they did anywhere else. I conclude that it was the combination of paraffine paper with some other things that produced that prize honey, and that those other things were far more important. I have before this produced section honey without the aid of paraffine paper, which went into the case untouched by the knife. They were built during the first of the flow by new swarms, in brand-new hives, in supers which perfectly compressed both edges and ends of the sections, and over a honey-board.

Another objection to the paraffine paper is the fussiness it requires, with the extra paper and thin boards (I use old separators), and the difficulty of removing in the last half of the season. Every time a super replaces another, there is a lot of red tape, so to speak, to go through with. First, the newspapers and thin boards must be carefully removed and laid aside; then, still more carefully, the paraffine paper — snip, snap, tear (confound it)—wsh-sh-sh-crack! (darn these things, anyhow!) and then it is laid on the lower super reversed, first smoking the bees out of the way, except some refractory ones that have to be cow-catchered out of the way with the edge of the paper; then, if the wind is blowing ever so little (it usually is, just then), held there while the other paraphernalia are reached for and spread on in succession; and you have the satisfaction of knowing that you have fixed up one super in good shape in the time that it would ordinarily take to fix two. I've had enough of it. I believe a fresh surface of burlap over every super full of sections, with three or four thicknesses, not necessarily unsoiled, above that, to keep it flat and conserve heat, would amount to about the same thing, and be much quicker handled.

By the way, I am coming to think honey-boards are a valuable aid in producing first-class comb honey. I was obliged to do without them this summer, and the percentage of fancy honey was rather small, in spite of the fact that half the hives had thick top-bars. The editor of GLEANINGS, speaking of thick top-bars and burr-combs, says the exception proves the rule. I would rather do without

BEE-KEEPERS TAKING IN NIAGARA FALLS.

the exception, in this case, because, besides *entirely* preventing burr-combs under the sections, the honey-boards very largely diminish travel-stain on the section honey, better, I think, than thick top-bars do. I am not sure of this, having been too busy to observe accurately, but that is my general impression.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N. Y.

WEED DRAWN FOUNDATION.

Question.—I noticed last spring that you would try the deep-cell foundation. How did it prove with you? Do you think it will be of any help toward the retarding of swarming? If we could only work for comb honey, and not be bothered with swarms, how nice it would be!

Answer.—I received two lots of the deep-cell foundation—one made of white wax, the latter part of the winter, and one of yellow wax, this latter reaching me about the 10th of July. The latter appeared to be nearly perfect, but, like all other samples which I received, it had what is known as the "flat base" to the cells. It was carefully fitted into sections, and put on the hives, a few sections to the hive, alternated with comb foundation of the Falconer make, just before basswood opened, so as to give it the best possible test, as basswood is our main honey-flower in this locality. But during a period of three weeks, in which it rained every day, our honey crop came near being a failure; and the result was, that very few of the sections having this drawn foundation in them were finished fit for market. I put the date of giving the sections to the bees on each section, and at the end of three days took out some sections containing this deep foundation and that of the Falconers' make. At the end of six days I took out more of each, and a careful comparison of each shows that the difference in appearance at the end of three days was not enough so that it can be detected, while at six days the difference is in favor of the foundation, the best specimens from foundation showing a weight of three-fourths of an ounce more of honey stored therein than was stored in the best specimens of the drawn foundation, while many more of the sections with the ordinary foundation were completed than of those containing the drawn foundation. This was very much against my expectations, for I had great hopes that this deep-cell-walled foundation was to be a boon to bee-keepers, if it could be made at a price to come within the reach of the average practical apiarist. When I found that disappointment was the record made, after a very careful trial, I began to look to see what was the trouble that the "thing did not pan out" as I had expected. I was not long in discovering that the trouble was in the flat base. I had used much ordinary foundation having the flat base, both of the Van Deusen and other makes; but with such foundation the bees always changed the flat base to that of natural comb, both with thin foundation and that made for the brood-frames, so that, after the same was filled with honey or brood, little difference between the base of what was once flat-bottomed foundation and that which had the natural base, could be seen. But when the high cell-walls were put on this flat base, it placed the bees where it was impossible for them to manipulate the base so as to change it from the flat to the natural shape, and their efforts in this direction caused them to be longer in perfecting section honey from this new deep-cell-walled foundation than where the ordinary was used. It also caused them to complete some sections on one side, while the other side remained almost untouched.

On cutting through the honey of sections which had been completed, and on looking into the cells of those not completed, it was easily seen that, in their efforts to change the base to the cells, the bees had put wax all around in the sharp angles at the base of the cells—so much so that, in many instances, the bottoms had a rounded appearance. Not only did I find this, but in a few instances it was evident that propolis had been used instead of wax, while the whole base in much of the unused part was varnished over with propolis till it was glossy, almost equal to varnish. This thickening of the base made the resistance in cutting the combs of section honey much greater than was that of the foundation, after completion, which every one admitted whom I asked to try the matter. Then when it came to eating the two, there was a half more of accumulated wax in the mouth from the drawn foundation than from the same-sized piece built from foundation. To show the real difference in the two I tried the resistance at the end of No. 16 wire, and found, with an average, from a five-trial test with each, that the resistance from the samples sent in the winter was 10½ ounces; from that sent in the summer (made from yellow wax) it was 8¼ ounces, while from that built from foundation it was only 5¾ ounces. In each of these trials, well-filled sections were taken, which were nicely capped over, or in marketable shape.

As has been spoken of in Gleanings, I have no doubt that the poor season had very much to do with the matter; and had the season been an extra good one the bees would have rushed honey into the cells without stopping to add the extra wax in the corners. But it will be remembered that much of the help to bee-keepers would come, by way of drawn comb, in a poor season, thereby enabling us to get something of a crop of honey, as we do with partly filled sections left over from the previous season, could drawn comb be as readily accepted by the bees as are these partly filled sections. Then if swarming is to be retarded, as our questioner hints at, the bees must not be averse to accepting what we give them, but, on the contrary, be only too eager to work on the same, thereby forgetting their desire to swarm.

I think, however, that, with all its faults, this deep-cell-wall foundation will be a boon to those who use bottom-starters, for in that case only two rows of cells will be needed; and with the experiments I have made along this line I find it keeps its place perfectly, while the bees are enabled to manipulate the first row of cells the same as they do ordinary flat-bottom foundation. I am told that Mr. Weed thinks he can yet arrange so as to make this drawn foundation with the natural base; and if so I shall look forward with eagerness till I am able to give such a production a careful test during the season of 1898.

Heads of Grain, from Different Fields.

DRAWN FOUNDATION NO ADVANTAGE OVER COMMON FOUNDATION.

I have just taken off the super containing drawn foundation. I will send you an average specimen of drawn foundation and common Weed-process foundation. The honey-flow nearly stopped in about five or six days after putting the super on. The super was filled with newly extracted unfinished sections except two of drawn foundation and two of common foundation, both having the same advantage by being placed near the center of the super. Three days after putting on, they were examined. At that time the drawn foundation was not touched, except to fasten it a little to one side. Contrary to my expectation, the common foundation was drawn out to nearly equal the drawn foundation.

Now, on taking the super off I find the only advantage the drawn foundation has over the other is in being so nicely fastened at top and sides. As usual in a poor honey-flow, the common foundation was not well fastened to the sides, while the drawn foundation did not even have a hole at the corners for a bee to get through.

However, this is no fair test. A man should have a whole summer to give an intelligent answer. I do not think the fear that you will have a cud of wax to chew after eating honey from drawn foundation is where the trouble will be. I think that to be able to make it cheap enough so the common bee-keeper can afford to use it will be the trouble, besides the difficulty of shipping. H. S. WHEELER.

Mt. Pleasant, Mich., Sept. 3.

[See article by G. M. Doolittle in this issue. We have had so far quite a number of flattering reports in regard to the new drawn foundation. Note, for example, those just following this; but as there are, undoubtedly, instances where bees do thicken the base, we, The A. I. Root Co., through Mr. Weed, will very likely abandon the flat base and make in its stead deep-cell foundation with *natural* bases. While the walls will not be so deep nor perhaps as delicate, the bases will be as thin as or thinner than those of the natural.

We have completed a set of dies on a very small scale that give us strong hope that the new product will secure to us all the advantages that we hoped to obtain from the use of drawn foundation with flat bases.

Strange as it may seem, the dies for making the natural bases are very much more easy to make; and the only wonder is that we didn't "tumble" to the fact sooner. We shall hope to have a set of dies now on a sufficiently large scale by next year so that we can give all our friends all the drawn or deep-cell foundation they want, with *natural* bases. If flat-base drawn foundation has in a *majority* of instances given good results, we may confidently expect that the same article with *natural* bases will invariably do so. Even if the flat bases always gave satisfactory results, we should *now* prefer to use the natural, *because* it will cost less.—ED.]

DEEP CELL A GREAT SUCCESS.

I have tested your drawn foundation in my apiary, and the result was so satisfactory that I will use it next year instead of foundation if you can furnish it at a reasonable price. Please advise me at what price you can furnish me 25 or 30 lbs. Of course, I shall not need it before next April, as our honey season will not commence before then. W. O. HEBISEN.

Emory, Texas, Oct. 6, 1897.

FIRST PRIZE FOR DEEP-CELL FOUNDATION.

You will be pleased to read that the deep-cell foundation took first prize for the best and most practical new invention for the bee-keeper. You know Toronto still holds the palm for having the best and largest exhibit of apiarian products on the continent. The award will, I believe, prove to be a judicious one. R. F. HOLTERMANN.

Toronto, Sept. 3.

[As we have found instances where the deep-cell foundation has too thick a midrib, we propose to make it with natural bases. I don't suppose honey from the latter will look any better than that with flat bases, which took the prize.—ED.]

DRAWN AND COMMON FOUNDATION FINISHED ABOUT THE SAME TIME.

We ship to you to-day a crate of honey. The 4 cases on top are the honey out of the supers you sent. You sent the supers too late for the willow-herb, so they are filled with goldenrod and wild daisy and boneset. The foundation in the full-drawn had nearly all fallen down, so it did not have a fair chance. If you had sent the foundation and let me set it, it would have had a better show. The bees went into the full-drawn first, but finished both about the same time. It was not a fair test. I should like to give it another trial next summer if you wish me to do so.

L. E. POWERS.

Thompsonville, Mich., Sept. 20.

ARTIFICIAL WAX SCALES TO ASSIST THE BEES IN COMB-BUILDING.

I have for some time wished to hear of your Mr. Weed, of foundation-fame, making a machine that would make wax scales—just such scales as the young bees make. I hope to live to see the day when the bees will be supplied with wax scales so that the colony can pick up the wax from a shallow box which will be placed in the bottom of the hive, and carry it to the surplus-boxes, and finish out the drawn-comb foundation, or use the wax scales to finish out the brood comb. A late writer questioned the propriety of purchasing foundation, as the bees made all the wax which would be necessary, and at a trifling expense in the way of honey. I was called to help a neighbor with his bees, and I took off for him the honey from two hives; the amount was 50 lbs.—30 from his best colony and 20 from the other—not one pound of which was in shape to sell. He did not use foundation. I suppose it was too expensive for him to use; but the loss of the sale on 50 lbs. of honey was also expensive.

I use foundation, and my best colonies so far have given 85 lbs., and are still bringing in honey, as the weather is very fine. I sold some honey at 12½ cts., and have had a fine home trade. Wm. H. Eagerty.

Cuba, Kan.

[I have referred your letter to Mr. Weed, and he says the best and cheapest way to give wax to bees is to give it to them in the form of foundation. A year or so ago, when Mr. Weed was making experiments in bleaching wax, he left some long strips of foundation out on the grass in our apiary. During the time when honey was not coming in, the bees carried in a good portion of it, in little bits at a time. Bees gather wax in dull seasons, not particularly because they need it, but because they have nothing else to do.

Even if we could make small artificial scales, I rather question whether they would be utilized, especially so where the real article itself is being secreted in sufficient quantities in the natural way.—Ed.]

BEES DISAPPEARING IN CALIFORNIA; THE CAUSES.

To-day I read on pages 369 and 372, May 1, 1894, about a controversy you had with an Ontario bee-keeper—McFatric—about bee-paralysis. It struck me then that I should report to you about a new trouble that is threatening bee-keepers here. I found in the bee-yard in the mountains that bees would not breed up as strong as I wanted them to do; in fact, some colonies would dwindle down in spite of having ample brood to justify a strong colony. I laid the blame to a large flume which passes near the apiary, and in which the irrigation water runs down at a terrible rate. I saw, several times, bees swept along that went there for water; but since then I learned that nearly all bee-keepers in that locality complained about losing bees at a terrible rate without being able to account for it; i. e., not finding any dead bees in front of the hives, as in bee-paralysis; also of losing queens more than in any previous year. I notice many bees coming home with ragged wings, as if they had to battle with strong winds. Upon closer investigation this state of affairs seems to exist only in a small district of Ettiwanda. Bee-keepers of Ontario do not complain, and have good to fair crops of honey, while at Ettiwanda the crop is from small to middling, although the locality seems to be A No. 1, showing hundreds of acres of white sage and other honey-plants.

I have made trips along the mountains away into San Diego Co., and visited many bee-keepers, and have not come across any similar case. M. R. Kuehne.

Ontario, Cal., Aug. 28.

DO BEES DISTINGUISH COLORS? AN INTERESTING INCIDENT.

I want to report a little experience which may be of interest to those of your readers who contemplate building house-apiaries. I have built one and painted it after Salisbury's advice. Starting at the south end it is 6 feet red, then 6 feet white, then 6 feet black, then 6 feet yellow, which brings us to the center of the building; then the rotation is repeated until the other end is reached. Bees were then put into the north half, three colonies in each color. When they began to fly I noticed a few returning to the entrances in the south half, but particularly to the white part. As the bees in the north half began to increase in strength the bees returning to the vacant south half began to increase. This morning we had a light shower, which drove the bees home in great numbers, and the entrances to the white sections in the south half were covered with pollen-laden bees hovering round in a lost condition; while some returned to the other shades in the vacant half, the number was not so great as to the white. Does it not appear that, instead of bees not being able to distinguish colors, it is such a conspicuous and all-sufficient landmark that they neglect all other bearings—and particularly a clean white, which is very conspicuous, even at a great distance? As I look out of the window I can see hundreds of bees hovering around those vacant entrances. It looks as if I should have to paint them over again, so that no two shades be alike. I might say further that it is 24 ft. from one section of white to the other, and one is near the end of the building, and the other near the center.

A. E. Trussler.

Trout Creek, Ont., Can., Sept. 6.

SMOKER FUEL; CORN-HUSKS, ETC.

In Gleanings for Aug. 15, page 603, I read about smoker fuel. I have had many troubles with fuel, and have tried every thing recommended, almost as persistently as many people do for a cold, and with more or less the same results. The best thing for fuel is corn-husks, used as follows: Start your smoker with wood. I use elm and maple that is about decayed. It holds fire best; then have your wood well fired, two or three pieces, in size from ½ to 1 inch square, 2 inches long; then put in some husks; blow up a little to start the fire on them, then fill up the smoker, packing them down tight with your thumbs and fingers, or a stick if thumbs and fingers are not handy. Blow up a little, or you may smother out the fire, and you will have a smoke that will be pleasant to look at. It is mild, does not make a hot fire; no sparks or ashes if you keep the smoker filled up occasionally, and packed down tight, after the first fire is partly burned. If husks are a little damp they make a greater smoke. Give this fuel a good and fair trial, and I am certain you will like it.

HOW TO KEEP ROBBERS FROM THE CRACKS OF HIVES.

I think it was some of our sister bee-keepers who suggested the use of a little fresh paint along cracks in hives where robbers were around trying to break one of the commandments. A few drops of coal oil squirted along and into the cracks will make them stop their humming around there, and will not daub or mar the looks of the hive. I have usually used a bunch of wet grass at the entrance of a hive robbers were trying to clean out, but not always with success. Just sprinkle a little coal oil on the grass, and observe the results. JOHN CRAYCRAFT.

Astor Park, Fla., Sept. 6.

THAT YELLOW IMPORTED ITALIAN QUEEN; YELLOW FEVER INTERFERING WITH THE SOUTHERN QUEEN-TRADE.

The imported queen mailed us Sept. 20th arrived the 25th in excellent condition. The queen and every bee were as lively as could be. The queen is safely introduced, and is laying. By the way, this is the yellowest imported queen we have ever bought, and we are truly proud of her.

On account of the yellow fever, all trains stopped running here the 16th, the very day we wrote you with instructions to mail the queen the 20th. We had given the queen up as lost, but luckily we had one mail train the 24th, and one the 25th, and the queen came through. All mail matter has to be fumigated here, and we don't know how the queen escaped. Every thing is at a standstill here now, and we shall have to give up the queen business for the rest of the season.

CLEVELAND BROTHERS.

Stamper, Miss., Oct. 1.

THE NEBRASKA STATE FAIR; HOW ALFALFA CARRIED OFF THE FIRST PREMIUM.

Bro. Root:—I am just home from the State fair, in which the fellows from the alfalfa district, in the extreme western portion of the State, lugged off the premium for the largest amount of honey stored by one colony—186 pounds of comb honey. This is no supposition, but verified under oath of Mr. C. M. Luelling, of Beaver City, Neb. Here comes a lot of bee-keepers from a district where, but a year or two ago, we thought honey could not be produced profitably. The Nebraska State fair was a very successful one indeed, and Nebraska bee-keepers are making arrangements to put up a fine honey exhibit at the Trans-Mississippi next year, and we earnestly hope that other States will fall into line, and let us see what can be shown in honey, etc.

E. WHITCOMB.

Friend, Nebraska, Sept. 27.

HONEY-CAKE RECIPES TESTED.

I just discovered your request on page 647 for tried honey-cake recipes to put in your leaflets. The one I sent you, that you will find on page 375, May 15, has been used in my family for 100 years, I think. When they took up the bees in the fall my grandmother used to make up a year's supply of the cake, so my mother tells me. The cake is not at its best until it is three or four months old.

The recipe on page 407, June 1, is first rate. We have tried it. It is good for immediate use, but improves with age, like most cakes in which honey is used. E. D. HOWELL.

New Hampton, N. Y., Sept. 27.

LOCALITY GOVERNING TASTE.

Replying to Dr. Miller's Straw and your corroboration in regard to locality ruling taste, it seems to me the assertion is altogether too broad, for surely locality does not govern taste any more than it does quality. I find in shipping honey some prefer white and some dark in the same locality; and among my home customers the difference is more noticeable. Some prefer basswood, some clover, some buckwheat, and some others fall flowers, and some even the darkest and rankest-flavored honey-dew (when I have it); some say, "I can't bear the white honey at all," and they will take the darkest grades in preference, even at the same price. This reminds me that one time I attended the bee-keepers' convention at Madison, Wis. When the question of propolizing the hive came up, a learned gentleman argued that it was governed by locality. My argument was that the difference was in the different bees, that in my own yard some hives were literally plastered with propolis, while others of the same make were almost entirely free from it. Then this man arose and said it was no such thing—that *locality* governed wholly. Of course, he was away up in "G" in bee culture, so his theory was accepted by the convention as conclusive. As to which was correct, many of you can judge from personal experience.

Hillsboro, Wis. ELIAS FOX.

LOCATION FOR BEES WANTED.

Will some of the bee-keepers who live between Washington, D. C., and Charleston, S. C., give the best location for bees, and what they gather from, say from the coast back one hundred miles? This is a favored strip of country in climate, but I never see any reports about bees. EAST COAST.

[Will some one or more in the locality please reply?—ED.]

SWARMING A SWARM OF BEES.

I do not know any other word to express better what I mean than the one I use. I had a colony of bees that persisted in swarming, and I did not want them to; so, about every eight or ten days I would cut out all the queen-cells, but still they sulked and hung out in front of the hive, and built queen-cells.

They had plenty of room and ventilation inside, but still they seemed bound to swarm.

After cutting out the queen-cells four times I was looking at a great bunch of bees hanging out in front of the hive. I thought I would swarm them. I got a small branch of a tree and fastened it firmly in the ground, opened the hive, caught the queen, and placed her in a mailing-cage with a few attendants, and fastened the cage to a twig of the branch. I closed the entrance of the hive, removed the frames, placing a piece of canvas near the branch.

I brushed the bees all off the frames, putting them in an upper story; I also cleaned the hive all out. The bees clustered around the cage containing the queen, just like a natural swarm. I placed the frames back into the hive and prepared it as it was before I began my experiment. I let the bees stay clustered for one hour, then I opened the entrance of the hive, shook the bees in front, let a little honey daub the queen so she could not fly, and she ran in with the rest of the bees. Now for the results of the experiment.

The bees went to work at once, and have worked ever since, and have not hung out one particle. I would say, however, I changed the location of the hive, otherwise it was just the same.

Now, the question arises in my mind, "Is the clustering out of the hive for an hour what satisfied the natural propensity to swarm, or was it the fact that I moved the bees to another location?"

I do not remember of either reading or hearing of any one doing this way before to stop swarming. I have tried it twice this season, with good results. Geo. L. Vinal.

Charlton City, Mass.

FOR LARGE HIVES; DEEP ENTRANCES.

There was a good deal said last year by writers in Gleanings and the *A. B. J.* about large hives; and those eminent bee-masters, the Dadants, claimed that the large hives were just the thing for us bee-keepers to use. I had been using a ten-frame hive whose frame measured 8⅞x14¼, inside measure. My bees that I purchased of G. M. Doolittle gave me 84 lbs. of comb honey last year in the aforesaid ten-frame hive. Thinking to try the large hive I made a hive whose frame measures 10⅜x19½, and transferred a swarm of the Doolittle bees, with their 9 combs taken out of Gallup frames, into the large frames I have mentioned. The bees filled out the large frames and loaded them with honey, and gave me 84 lbs. of surplus honey besides. My bees are all of the Doolittle stock; and while I have colonies in the smaller hive that gave the same amount of surplus, they did not have to build so much brood comb. I believe the Dadants are perfectly right in their claim that the more work you set for the queen to do, the more she will do.

It was a real pleasure to see the bees come out of the large hive when honey was plentiful in the fields. The flow of honey came late, and did not last very long this year; and I tell you those large colonies did hustle to get the honey crop secured, and they got it too. I am very well pleased with the work done by the honest little workers. I was afraid at one time that I should not get any surplus this year; but I am happily disappointed.

On page 661, Sept. 15, you say, in your remarks on Mr. Gill's letter, "We expect to make our hives next year so that the entrances will be an inch deep and the full width of the hive," etc. The entrances to my hives are $\frac{7}{16}$ x 14⅞, or full width of the hive. Now, what I want to call your attention to is that your customers, in using your hives, will often want to almost close the entrance; and the best way to do so is to saw out sticks that will just fill the aperture. Most of the lumber to be had throughout the country is ¾ instead of ⅞, and you should make the entrance $\frac{13}{16}$, $\frac{11}{16}$, or $\frac{7}{16}$, so that, by a little planing, ⅞, ¾, or ½ inch lumber will fill the entrance. Such blocks or sticks are far better than loose ones. I use two sticks, leaving the opening in the center of three or four inches in cool weather, and no blocks in summer time.

Cuba, Kan. Wm. H. Eagerty.

THE IMPORTANCE OF SHADE FOR BEES.

In looking at pictures in the A B C book and Gleanings and other journals, my attention has often been drawn to the fact that so many apiaries seem to be exposed to the direct rays of the sun; and in arranging our little apiary, shade was a matter of secondary consideration with me; but as the care and work with them began to increase we found shade a great benefactor. Yesterday, as I took a little stroll through our apiary, one colony exposed to the sun, without any shade whatever, attracted my attention by so many bees swarming in front of it and settling on all sides of it; but as I approached a little closer I found the bees considerably out of humor about something; and, having no veil on, they gave me to understand that I was on forbidden ground, and made me quicken my steps out of there. When my wife (who is the real bee-keeper) came home from the fair I related the strange behavior of that one colony, and she at once put on a veil and proceeded to investigate the matter, and found honey leaking out in front of the hive. Upon further investigation we found that not only had the three cases containing eighteen sections (nearly filled and capped) melted down, but every one of the ten frames in the lower part of the hive, filled with brood and honey, melted down into one mass, and every bee was drowned in its own sweet.

P. A. Peterson.

Boswell, Ind., Sept. 9, 1897.

BEGINNERS
QUESTION
BY E. R.
ROOT.

J. H. J., Pa.—There is no way that you could remove the colony from the oak-tree of which you speak, if the bees are in the body of the tree, except by cutting it down. If they are in a limb of the tree, you can climb it and cut the limb off ; but before it is severed entirely from the tree you had better fasten a rope to it and let it down gradually, otherwise you will smash the combs and greatly enrage the bees. After the limb is down, saw both ends around the bees, and carry home just that portion which contains the colony itself. You can then transfer them at your leisure.

R. A. L., Va.—We should be inclined to believe that the colony you refer to has something that it recognizes as a queen. It may be a virgin queen that is very small—little if any larger than a worker. This would account for all the phenomena you refer to. If the hive were ours we would put perforated zinc before the entrance, and shake every bee out in front of the hive, and compel them to crawl in again ; then watch closely for something that can not go through the perforated zinc. Virgin queens will sometimes go through the perforated zinc, but such cases are very rare.

[Just before the above went to press we had a letter from R. A. L., stating that he found a virgin queen by the use of perforated zinc, as above explained, and now his troubles are ended. He had previously thought the colony queenless, and had tried to introduce laying queens, but without success.—Ed.]

W. C., N. Y.—Yours not dated is at hand. We do not remember the article to which you refer, which you say you sent us some years ago, and which we did not publish. You may rest assured it was not because there might have been some things in it with which we did not agree. In almost every issue of our journal we publish some things that are not in accordance with our methods of working ; but we are glad to give place to them, because not all people can be induced to work by the same methods, nor to see the same thing in the same light.

Referring to the article which you have just sent in, you tell us of the good results you have secured by your method of wintering, but you do not tell what it is. The article as it is would be of no use to us.

Again, you speak of the great loss of bees throughout the country. I think you must be misinformed. The progressive, practical bee-keepers of the day suffer very little loss comparatively. We have lost scarcely two per cent in the last fifteen years, and among the modern progressive bee-keepers we would venture to say that the loss does not exceed five per cent on an average. If you care to submit your method of wintering, and in our judgment it seems to have merit, we shall be glad to publish it in our journal. If we could see it we might possibly then discover that it is the same that many of us have been using for a good many years.

Now, I hope you will not think we are trying to cast discredit upon your idea—far from that. It is possible that you have a valuable invention, and that it might be worth much to yourself as well as to your brother bee-keepers.

TREATING FOUL BROOD LATE IN THE FALL.

B. T. C., Maine.—We would not advise you to burn any of your hives. In the case of the chaff hives, knock out the bottom that holds the chaff, pull out the chaff, and burn it. After you have the whole lot thus "unchaffed" immerse each one in a vat of boiling water, and keep it there at least forty seconds—a minute would be better. It is possible you may not be able to find such a vat ; but I think if you were to load your hives up and take them to some cheese-factory you could be accommodated.

Another way to disinfect (and it may be just as good, and it is a good deal cheaper) is to paint the inside of the hives with kerosene, set fire to it with the cover off, and let the inside of the hive blaze until it is charred just enough to show that fire has been inside the hive. To arrest the further progress of the burning, throw in about two tablespoonfuls of water, clap the cover on, and the steam which will immediately form will smother the fire. This plan was recommended by J. A. Green, and I believe by him was found to be entirely successful. The only objection to it is that it leaves the hives blackened inside ; but this does no harm, and it shows unmistakably that the hive has been disinfected. When the hives have been burned out inside, of course it is not necessary to remove the chaff.

In the case of single-walled hives I would by all means recommend immersing them in a kettle of boiling water, covers and bottom-boards and every thing, including smoker, honey-knives, and other tools. The honey-knives especially should be boiled thoroughly.

Now as to the treatment of the bees : It is so late (Oct. 5) that it is a question whether it would be worth while to try to save them. I would not advise you to destroy them, but shake them on to frames of foundation ; and after they have starved long enough to be weak, dump about three lots of them into each hive, and then begin feeding. It may be necessary for you to do some returning from the old stands ; but if the old hives are removed entirely, the bees will be sure to find the entrances of hives that contain bees ; and as they will be so thoroughly mixed up, there will be no fighting. If you have forty colonies that must be treated, then you will have a dozen or fifteen, each of which will contain what was left of three colonies. By proceeding on this plan I think you will save the bees.

The honey you can extract and boil, as you suggest ; but the combs and frames should be burned. It is useless to try to melt out the wax or to try to disinfect the frames. It can be done, but it does not pay.

By
E R
Root
Editorial

BUCKWHEAT HONEY; CLAMS, LOBSTERS, ETC.

In some families in York State it was something of a surprise to me that they should prefer buckwheat honey to the best clover, mountain sage, or alfalfa honey ever produced. Some of them, if they wish to treat you to their very best honey, will give you buckwheat. I suppose it is one of those kinds of honeys that we have to learn to like, just as we have to learn to like olives, oysters, clams, and lobsters. I tried to learn to like clams on my recent eastern trip, and I tried to learn to like buckwheat honey, but I failed signally with both. We are all glad, however, that there is a very large class of people who think buckwheat is the very best honey in the world; and were it not for this particular liking, many of the York-Staters would not be keeping bees as they now are.

WHITE HONEY FROM CUBA.

Mr. Fred L. Craycraft, formerly of Cuba, but now of Astor Park, Fla., of whom mention was made in our last issue by our Mr. A. I. Root, has sent us up a sample of campanilla honey. When he was here in Medina he stated that Cuba produced large quantities of white honey, and their best was campanilla. It is of good body, almost as light in color as California sage, and quite the equal of it in flavor. In fact, it would compare very favorably with any light honey in the world. I do not know how much our Cuban friend has of such honey for sale, or how much he is expecting to have, owing to the war that is now unfortunately devastating that island. But there ought to be a good demand for it in the London markets, and I bespeak for it a good sale when peace shall have been restored in that beautiful island now desolate by the cruel hand of war.

FOOD ADULTERATION.

The Department of Agriculture, Washington, D. C., through Mr. A. J. Wedderburn, is now making special effort to investigate the extent and character of food adulteration, and is desirous of securing all the information on the subject possible. Among other questions asked were: "Would a national food and drug law assist in preventing adulteration?" Also, "What is your opinion as to the extent of damage done to legitimate business by the imitation of brands?" And again, "Have State laws assisted in preventing adulteration, and to what extent?" Prompt replies are called for. We have already written, giving our opinion of the evil done to the honey business by the use of glucose, and saying that a national law is exactly what we need. We hope our subscribers will take the pains to write to Mr. Wedderburn, at Washington, D. C., care of Department of Agriculture, Division of Chemistry, and let him feel that we are suffering from the glucose business, and that we need relief. Please do not put this off, but give it your immediate attention.

SWEET CLOVER—THE WHITE AND THE YELLOW; DIFFERENCES BETWEEN THE TWO.

I believe it has been stated in our columns that white sweet clover and yellow sweet clover were exactly alike except in the matter of color of the blossoms. Mr. E. T. Abbott, of the *Busy Bee*, and myself were sitting in the same seat in an electric car that was making its way to Niagara Falls, when suddenly he pointed to the roadside. All along the way there seemed to be literally miles of *yellow* sweet clover skirting the track. Mile after mile there was nothing but the yellow, and then occasionally there would be patches of the ordinary white sweet clover, and then it would change to yellow. Mr. Abbott called my attention to the fact that the yellow was a smaller plant. While the white at a short distance was from four to six feet high, the yellow was scarcely ever over two feet. The remarkable thing seemed to be that there was no white mixed in with the yellow. It was either one thing or the other.

I saw yellow sweet clover in only a very few places in York State. I have never seen it in Ohio or anywhere else. Whether the bees will work as well upon one as upon the other, I can not say. We were spinning along at such a rapid rate on the street-car that I had no opportunity for investigation, even if bees had been on the blossoms.

APIARIES IN SHEDS; GOING TO PICNICS.

The editor of the *Amer. Bee Journal*, as well as your humble servant, has been out attending bee-keepers' picnics. At all events, Mr. York, with his office force, attended what was styled the "Honey Harvest" at the outapiary of Mr. L. Kreutzinger, Aug. 21, 1897. Mr. K. had sent out nearly 200 invitations to his friends, and a picture of the company (for it would seem as if his friends all came) appears on the first page of the *Amer. Bee Journal*. On another page of the same periodical is a half-tone view of the apiary. This is said to be the largest one in Cook Co., Ill. The hives, instead of being on the ground, are placed under sheds facing each other in such a way as to shut off the wind and yet let in a flood of sunshine. From the looks of the picture it would seem as if the hives are handled from the rear. That being the case, the apiarist is in the shade. If his back aches in handling those hives near the ground on the first shelf, all he has to do is to straighten up and commence manipulating the hives on the upper shelf—about breast-high, I should judge.

In my eastern trip among bee-keepers I saw only one apiary the hives of which were in sheds, and that was at Mr. House's, at Marcellus, N. Y. This Mr. House (I have forgotten his initials) is a brother of Geo. W. House who a few years ago was connected with the *Amer. Apiculturist*. These sheds were arranged at the base of two hills facing each other, and all over the hills was a heavy growth of timber. The place seemed to be an ideal one for an apiary, and "as pretty as a picture." I snapped my Kodak, but it was so late in the day I failed to get the pretty picture I expected.

THE HONEY EXHIBIT AT THE MARYLAND AGRICULTURAL COLLEGE.

FROM a private letter from Mr. Charles H. Lake, who had charge of the honey exhibit at the recent Maryland Agricultural Fair, we make the following extract :

> The college exhibit of bees and honey was the drawing card, and was attended by at least two-thirds of the visitors, 33,000 in number. I refer you further to a clipping from the Baltimore *Sun*. It was one of the most successful exhibits of my life, and many congratulations were showered upon me.

From the clipping in question we make the following extracts :

> In a large tent erected to the northeast of the household-department building is the interesting exhibit of the Maryland Agricultural College, which is confined almost exclusively to bees and honey. There are to be seen eight hives of bees, occupied in storing honey in the comb. There is also a large pyramid of honey weighing 250 pounds, representing the product of one swarm for a year. Besides this there are two specimens of white-clover honey. One is pronounced by an expert on bees and honey to be superior in quality to any exhibited at the Columbian exposition in Chicago, and the other is a very unique and valuable specimen found in the roof of a hive on taking away the honey.
>
> A small pyramid shows fancy designs in honey and bottles filled with extracted honey made from several varieties of flowers. There are seventeen varieties of these, and they retain characteristic flavors and color of the plants from which they are derived. This exhibit is in charge of the college apiarian, Mr. Chas. H. Lake, who has been engaged in bee culture for forty-seven years.

BEE-KEEPERS AT NIAGARA FALLS.

AFTER the Buffalo convention the bee-keepers went to Niagara Falls in little squads. The party that I happened to fall in with was Messrs. D. N. Ritchie, P. H. Elwood, E. A. Wander, E. T. Abbott, and two others whose names I have forgotten. It was arranged that we were to meet Messrs. York, Miller, and a number of other bee-keepers, on Goat Island ; but somehow we "missed connections." Of course, I took along my Kodak, intending to secure a snap shot of a number of the leading lights in apiculture, with the beautiful Niagara Falls as a background. Having failed to meet the other "crowd" I gathered our company into groups at several different picturesque points, and "pressed the button." In another column I have reproduced a "shot" of the gentlemen just as I hit them standing upon a rock, with the Horseshoe Falls for a background The fog, or mist, arising from the falls almost obscures the famous horseshoe. The wind was blowing quite hard, and it will be noted that every man in that crowd was obliged to cram his hat down level with his ears, or stand a good chance of losing that important piece of wearing apparel — just as I did, in fact, a few years ago, lose mine upon almost the same spot.

Well, to return. Our crowd took in the Falls generally, ate dinner on the Canada side, just to see how it would seem, you know ; went down the Gorge, passed the Whirlpool Rapids, on to Lewiston. All the way down I took snap shots of the rapids while the car was going at full speed. One lady curiously remarked, as she watched me taking pictures while the car was under full motion, "I don't see how you get a picture when every thing is going." "I catch them," said I, and I did. Another old lady wanted me to let her look into the camera to see how it looked, and whether the picture was good or not. That, of course, I could not do, as the film had to go through a process of chemical manipulations before it came out a picture.

I hope the view of the bee-keepers on the rock will appear better than the picture in our last issue showing some leading bee-keepers at the boarding-house. This picture did not "work up on the press" as I hoped and expected it would. I trust the one I have shown in this issue will come out better. Half-tones are very uncertain, and one can never tell in advance just exactly how they will behave until they get on the press.

W. A. SELSER.

As Mr. W. A. Selser, of Philadelphia, has of late been creeping rapidly to the front as a leading bee-keeper, queen-breeder, honey-buyer, and supply-dealer, I thought our readers would like to see a picture of the man, more especially as he believes in *paying cash* for honey rather than taking it on commission. He did not have a photo of himself alone, but had one of himself, wife, and baby, and, "would that do?" I told him to send it on, of course ; and when I saw it I was glad that he didn't have a picture of himself only. I sometimes think it is selfish to show a picture of one half and not the "other half," for many a man is what he is because of the good wife and God's greatest gifts to the home—children. The cut is shown elsewhere in this issue.

I solicited a few facts for a "write-up" to go with the picture, and here they are :

W. A. Selser was born in 1859, in Philadelphia, in that section of the city then called Northern Liberties ; was educated at the public schools, afterward attending the Philadelphia College with the idea of studying for a profession. A year before graduation he was taken sick for six months ; then having a good offer of learning the morocco-leather business, he entered the factory of Wm. R. Stewart & Co. In about two years Mr. Stewart failed, and Mr. Selser entered the establishment of Selser & Bro., his uncles, importers of foreign fruits, a business established by his father, who died when the subject of this sketch was but twelve years old. He traveled much for this firm, remaining with them six years, when a chance occurred to take an interest in an old-established morocco-leather firm, starting as Selser, Meurer & Co., and finally merged into the Quaker City Morocco Co., of which he was treasurer, employing 400 hands, and doing a business of three-quarters of a million dollars a year. In 1892, through the heavy defalcation of their trusted buyer of hides, they were compelled to give up business. Mr. Selser then took a trip to Florida for the old house of his uncles, visiting many of the bee-keepers there. On his return he stopped at Medina, staying over night with The A. I. Root Co. It was a case of "mutual admiration" as he says, and he on his part was so impressed with the supply business that he made arrangements then and there to handle the Root goods in his city.

He became interested in insects while attending school, and afterward gave special attention to the study of zoology, and bees in particular. In 1889 he started an apiary of 15 hives in his garden, for pastime. In 1892 he bought out a large apiary in Chester, and now has one house-apiary and three out-apiaries that he manages himself, aggregating 400 colonies and nuclei, and has control of 17 apiaries in other States. He makes a specialty of extracted honey, and expects to bottle this year over 15 tons.

In 1894, when the pure-food law passed the Pennsylvania Legislature, Mr. S. took a special course in chemistry under Prof. Wallace, to detect the adulteration of honey sold in his market.

Mr. Selser married in 1889; moved to Jenkintown, a suburb of Philadelphia. The cut shows his wife and little girl, Margaretta, four years old. The latter helps him in his business. She dons the veil, holds the frames for her father while he works in the apiary, and is no more afraid of bees than a veteran. Mr. Selser has a sister three years his junior, who has been a great help to him in his business.

The best thing I can say about our friend is that he is an earnest Christian, and so far our business relations with him show that he does as he would be done by.

NOTICE.

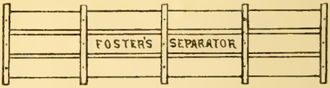
To all new subscribers, and also to those who renew before their subscriptions expire, and inclose $1.00, we will send the *Busy Bee*, a monthly bee-paper, in addition, free.

SECTIONS WITHOUT BEE-SPACES AND CLEATED SEPARATORS; ONE-PIECE AND FOUR-PIECE SECTIONS FOR SCRAPING.

At several of the different yards I visited in York State I noticed that the four-piece sections were still being used in preference to the one-piece, notwithstanding the former cost more and take more time to put together. I never could understand exactly the reason unless it was that there was a time when the one-piece sections that used to be sent out would, when folded, incline toward a diamond form rather than a true square; and this "naughty corner" induced many to use the four-piece section. In the last few years nearly all the manufacturers, I believe, have discovered that it is perfectly easy to make the one-piece assume a true square as well as a diamond form; and latterly I have been noticing that the one-piece was creeping into the territory of the four-piece. But, as I said, several are even now using the four-piece, and this preference seems to be due to the fact that these sections offer facilities for scraping that the one-piece with the ordinary score cut out for openings does not. It will be remembered that the four-piece section has an opening clear across the top and bottom of the sections, while the one-piece has an opening that is scored out and reaches to within ½ inch of the corner. At one or two places I was shown that the scraping-knife could at one sweep go clear across the top edge of the section, and at one sweep go down the side edges of the section. But in the case of the one-piece the knife had to dip down and out again.

MORTON'S NO-BEE-WAY SECTIONS AND MORTON'S HONEY.

At the apiary of Mr. Miles Morton, Groton, N. Y., to whom I have already referred, I found not only four-piece sections, but sections with practically no openings at all, the bee-space to the sections being effected by cleats on the separators. I said "practically no openings," for the top-bars of the sections were narrower by ⅛ inch than the side-bar. In other words, there is an opening ⅛ inch wide between the tops and bottoms of the sections when put close together. Of course, this would not be room enough to let the bees between the sections. Accordingly, separators are used cleated, the cleats being ⅛ inch thick, and so spaced on the separator that they come just opposite the upright edges of the sections. The ⅛-inch-thick cleat, and the $\frac{1}{16}$ in the sections, make just exactly a bee-space of $\frac{3}{16}$ inch. As these separators are cleated on both sides, the cleats being held in position by glue, the regulation bee-spaces are preserved in the sections while in the supers. But you may ask why Mr. Morton did not have *all* the bee-space in the sections like those all the rest of us use, instead of ⅔ of it in the separator. I can answer this question by saying that, if you were to look over his lot of comb honey, you would at once see the reason. The comb surfaces come within ⅛ inch of a straight edge resting across the sides of the section, and $\frac{1}{16}$ inch from the same straight edge reaching across the tops and bottoms of the section. The consequence is, the section appears to be fuller, and looks, oh so much nicer! When I looked over this lot of honey I said, "Why, you have selected this because it is filled out well."



"No, sir," said Mr. Niver, Morton's "brother-in-law." "It has not been graded at all."

Then I looked over some supers just as they came out of the hive, and pulled out sections here and there at random. They were all alike. Mr. Morton's honey would grade, according to my notion, extra fancy right alongside of ordinary honey placed in sections having a bee-space, that would grade only about No. 1.

CLEATED SEPARATORS EASILY AND INEXPENSIVELY MADE; GLUE INSTEAD OF NAILS.

Perhaps it may occur to some that a cleated separator, such as I have just described, would involve the use of a great many pieces, and a good deal of work to put them together. For the ordinary 4¼ section there would be, in fact, 11 pieces. I must acknowledge that I myself felt that the nailing-up of such a separator would be simply awful—that one would get tired of puttering with so many little pieces and so many nails to get one separator. For several years back we have been making cleated separators; and till lately I felt sorry for any one who thought it necessary to use such a clap-trap. After being at Miles Morton's I not only saw the great value of such a separator, but found that the labor of putting it together could be very greatly reduced by using cabinet-makers' glue. Mr. Morton uses a form which spaces the long strips and the short ones just so far apart. The separate pieces are dropped into the form, and those surfaces that are to come in contact are smeared with cabinet-makers' glue, when the strips are laid in their proper positions. As the form is made to take a deep pile, the stuff is piled up, as it were, like cordwood, and very rapidly, too, by any kind of cheap help. After the pile has been made, the tier of separators is lifted out of the form very carefully, set to one side, and a weight placed on top. Of course, in a few hours these separators are ready for use. You may think that the glue would not hold; but Mr. Morton assured me that he never had any of his separators break at the glued joints. In my hands is part of a separator that has been glued together. I have tried to pull the stuff apart with my fingers, and actually have had to give it up. (A later attempt separated the parts, but the wood itself gave way and not the glue.) There is every thing in having good glue. The ordinary prepared article will not be suitable for such a purpose; and, besides, it would be too expensive.

THE PRETTY EFFECT OF THE NO-BEE-WAY SECTIONS FILLED WITH HONEY.

You can get somewhat the effect of the non-bee-way sections filled with honey, but not entirely, if you take a series of your sections that are filled out about equally, and, with a common smoothing-plane, plane the edges of the wood of the section until the bee-space, or scoring-out, almost disappears. Now stand four of such right by the side of those that have not been planed off; then note how much prettier the former look. J. E. Crane, of Vermont, showed me this trick seven years ago.

I was not surprised when Mr. Morton's brother-in-law, Mr. S. A. Niver, told me he could get a higher price every time for Mr. Morton's honey because it looked so plump and nice — much more so than he could ever get for sections having a full bee-space.

Coming home, I found our friend Mr. Francis Danzenbaker, who uses a section, it will be remembered, that has a bee-space on one side, and none on the other. On the table he placed four sections filled with comb honey, with the bee-space side *toward* us; and from the same lot he placed four other sections, exactly like them, also filled with comb honey with the no-bee-space side facing us. Any one who could not see that the last four looked several cents better per pound than the first four mentioned must be blind indeed. I said to Mr. Danzenbaker, that "the side of the section having no bee-space on it looked so much nicer, why not go one step further and take the bee-space off the other side as well, and use a double cleated separator?" He was afraid that no-bee-space sections would not crate well in the shipping-case; and he thought, moreover, that such a section looked too lean when looked at from the side.

So far as the crating part of it is concerned, Mr. Morton crates his honey right along without any difficulty, but he always uses a piece of thin veneering between each row of sections. So far as the leanness was concerned, I must say that I could not see that it made any practical difference.

THE ADVANTAGE OF A NO-BEE-WAY SECTION FOR SCRAPING.

Ever since I have been home from the East I have been thinking of the great advantages that would accrue from sections having no bee-space — sections perfectly flat on both sides. They would be cheaper and easier to make, far handsomer when filled with comb honey; and when it comes time to scrape their edges, how much easier to go over them with a scraping-knife! Just picture, for instance, in your mind's eye, a section having a perfectly flat side so far as the wood is concerned, without any bee-space. Now, in your mind's eye also take a common case-knife and clean the propolis off from that whole side of the section, with *one sweep;* no jutting corners nor curved openings to dodge into and out again—absolutely no danger of gouging into the honey. If you can't see that in your mind's eye, take a smoothing-plane, cut off enough wood from a section to obliterate the openings or bee-ways on both sides, top and bottom; then take a case-knife and lay it near one corner and notice how easily you can scrape the whole four sides at one swing of the knife.

THE SAVING IN SHIPPING-CASES.

This is not all. With the no-bee-space section we effect a great saving in shipping-cases. Suppose, for instance, you take a 4¼ section, and leave off the bee-ways, and you will find it to be 1½ inches full instead of 1⅞. If we use double cleated separators, it will hold just as much honey as the 1⅞ with openings. Well, then we can put in a shipping-case that ordinarily holds 24 one-pound 1⅞ sections, 32 sections of the same kind without the bee-spaces or bee-ways. The gain to the honey-producer in shipping-cases is just exactly *one-third*. Or, to put it another way, the honey-producer would save one-fourth the cost of the shipping-cases by the adoption of sections with no bee-ways. Besides this great saving, he will have honey that will run at least one grade higher in the market.

HOW THICK TO MAKE THE CLEATS TO CLEATED SEPARATORS.

But, you may ask why Mr. Miles Morton

does not use sections without any bee-space whatever. I do not exactly know, unless he thought that leaving the $\frac{1}{8}$ space in the section on one side would allow the sections to crate together better. However that may be, I think the difficulty is entirely obviated by using the thin veneer stuff between the sections. As I will presently show, by a certain adjustment in the *thickness* of cleats on the separators, we can make the faces of the combs as near the edges of the sections as we like. If we make the cleats full ¼ inch, then the faces of the combs would be just even with the edge of the sides and tops of the sections; but if we make them $\frac{3}{16}$, or scant that much, then the surface of the comb will retreat from the straight edge across the sides of the sections $\frac{1}{16}$ inch. If we make the cleats only ⅛ inch thick, then the surface of the comb will retreat back ⅛ inch from a straight line across the edges of the section. This last thickness, ⅛, would be the proper thickness of a cleat on the cleated separators; and to secure the necessary bee-space or opening at the bottom, the separator itself should be just enough narrower than the inside height of the section to make the opening $\frac{3}{16}$ wide.

NEW-STYLE SECTION ADAPTED TO OLD SURPLUS-ARRANGEMENTS.

Now, about this time I imagine some of you saying, "Look here, E. R. R., are you proposing to foist upon the bee-keeping world an entirely new section, thus compelling us to discard our supply of surplus fixtures in the way of T supers and section-holders?" Not at all. If you will take one of your 1⅞-inch sections and plane off the bee-way as I have described, you will see that you can use them in your hive-crates just as you did your old ones. The T super itself would be very nicely adapted to such a section; so also would the section-holder arrangement. The cleated separator would take up the spaces formerly occupied by the bee-ways themselves, so your crates and fixtures will come out just the same as before.

Now, perhaps another question may arise: "Do you propose to discard 1⅞ sections in your manufacture and substitute in their place the no-bee-way section?" Not at all. That is to say, we will keep right on making the old-style sections as above, because, no matter how good a thing may be—no matter now much saving it may effect—it would take time, under the most favorable circumstances, to make the change. But all of our readers who appreciate the merits of this section, and want to use them another season, can be accommodated. Space will be given in our forthcoming catalog to describe the sections and other changes. Then our customers can have an option. But, of course, the old-style section will be made regular, and all will be supplied as otherwise ordered.

No doubt some of you will suggest at once that the cleated separator will cost more Yes, a little more; but in the hive combination it would cost no more, for the reason that, where we make a little increase in one way we make a saving in another. The new-style separator we hope to make of lumber that we ordinarily burn up, instead of cutting up good timber as we now do for the ordinary slotted separator.

THE CLEATED SEPARATOR AN OLD IDEA.

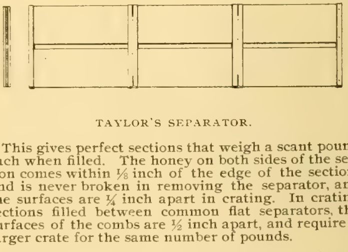
I have no engraving yet that shows the cleated separator I have been talking about, but have something pretty nearly like it. And this leads me to the idea that the cleated separator is not a new idea by any means. If you will turn to GLEANINGS for Nov. 1, 1888, you will find what I have been describing is illustrated and described by Mr. Oliver Foster; and at the beginning of this article I give the illustration as it then appeared; and right here will I give some of the good features enumerated by Mr. Foster.

1. It furnishes free communication from side to side.
2. It will not bend nor wrinkle as tin does, nor warp and split as ordinary wooden ones do.
3. It serves as a support for the sections (where the bee-space is used), doing away with the necessity for T rests or other supports under or between the sections (except at ends of case).
4. The lines of propolis resulting from the contact of these supports are thus avoided.
5. No trouble with sections catching on the edge of tins, nor with getting in the last sections.
6. The outside rows of sections can be easily turned to the central part of the case for completion.
7. The cost, I think, will be less than that of any perforated separator yet offered.

You will notice, incidentally, that the separator is made up of three pieces. Miles Morton's are made much in the same way, only his cleats are glued on.

The bees can go back and forth through such separators. This one feature alone is worth all the separator costs, because it permits of the combs being filled out fuller, owing to the fact that each individual section is not shut up completely by itself.

At a later time, in GLEANINGS for March 15, 1895, Mr. B. Taylor illustrated and described a similar separator. Mr. Taylor, in speaking of the advantage of such separator, says:



TAYLOR'S SEPARATOR.

> This gives perfect sections that weigh a scant pound each when filled. The honey on both sides of the section comes within ⅛ inch of the edge of the section, and is never broken in removing the separator, and the surfaces are ¼ inch apart in crating. In crating sections filled between common flat separators, the surfaces of the combs are ½ inch apart, and require a larger crate for the same number of pounds.

Mr. Miles Morton has been using his arrangement for some eight or nine years, and Mr. Danzenbaker has been using something similar for about two years.

Now, then, brethren, the subject is open for discussion. I suppose there will be some criticism and some objections to such a section. Let us have them all now. I wish especially we might hear from those who have been using an arrangement similar to this, as to how they like it. I have not attempted to give all the points *for* the section.

NOTES OF TRAVEL

BY A. I. ROOT.

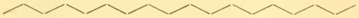
A VISIT TO LANDRETHS' GREAT SEED-FARM.

I made another blunder here in not having an adequate idea of my undertaking. When we reached the station, and were informed it was only a mile to Landreths' farm, and a good nice walk, friend Selser and I decided to go on foot because we had been sitting all the morning. Well, we did get on to the Landreth premises after walking about a mile; but it was fully another mile on their own premises before we got into the heart of the business. What I should have done was to procure first a livery, especially since my arrangements permitted me to spend only two or three hours at the place. When you undertake to visit a garden that covers something like two square miles, you have a pretty big amount of travel on your hands, even if you take only a hasty look at the different fields of different crops. A great many times we are disappointed when we get really into grounds that we have read about in seed catalogs; but in this case it was just the other way. I had no conception of the immense size of the Landreth plantation, the number of buildings, the number of hands employed, the different kinds of machinery, etc. Some of the buildings are quite old, it is true; but many of them are very pretty, and the grounds, as a rule, are nicely kept in beautiful order. A great stone warehouse, so old that it is covered with English and Japanese ivy, especially attracted my attention. It is 200 feet long, 40 feet wide, and 3 stories high, and was built a good many years ago.

A little later, when I was asking them how they managed to cure their onion-sets so they kept from freezing, and also kept dry, I was told they were all placed in this great stone warehouse after the weather becomes too severe to leave them in the lofts which I will describe presently. When I inquired if they ever used fire heat to dry them out, the reply was, "Oh! no, no! Onions and onion-sets must be kept just as dry as possible. They must be dry, and at the same time cold; and the old stone warehouse that keeps out frost without the aid of any artificial heat is just the place to keep onion-sets from either freezing or sprouting."

Long before we got to the center of business I told friend Selser that there was an odor of something that, although familiar, I could not quite recall to mind what it was. After sniffing the air several times, however, I ejaculated, "Oh! radish seed — that is what I have been smelling; and when we get a little further you will find they have been thrashing out radish pods to get the seeds." When we got along far enough, that is exactly what we found they were doing.

I was greatly interested in their arrangements for curing onion-sets; and in a little time we saw, away off in the distance, almost as far as the eye could reach, field after field covered with queer little structures that looked like chicken-coops — the letter A sort. I said to myself, "Why, the Landreths can not be in the poultry business to such an extent as this, surely." Then I found that these were trays on which the sets were cured after being sifted from the dry earth. Each tray holds two bushels of sets; and two trays are set together, letter A fashion, only not quite so tall. The trays are put in a long string, touching each other where they rest on the ground, and touching each other also where they fit together above ground, something like this:



This permits the air to pass all around under the trays as well as over the surface. It also admits the sun on all sides. I do not know what they do when it rains, but I suspect they manage to get them under cover, at least to a great extent, before any rain comes on them. When they are sufficiently dry they are put into large sacks and piled up high on wagons made on purpose, with sloping sides. I should have said that, in their business of growing onion-sets, they use something like 20,000 trays. Although I did not measure the trays I should think they are perhaps 2½x3 feet. The bottom is thin light lumber, with some cracks to let the air through, the said cracks being too small to let even small onion-sets get out. Their crop this season will amount to about 80,000 bushels. Now, do not get the idea that I mean *eight* thousand. It is really *eighty* thousand bushels. They sometimes sow for onion-sets as much as 8000 lbs. of onion seed, and 250 men are frequently employed in caring for the crop. After the onion-sets are hauled in on these great wagons, they are put through a machine run by a steam-engine that sorts out the different sizes. I believe the orthodox size for onion-sets is not over ¾ inch in diameter; but they can be as small as you choose—the smaller the better. Those that are over ¾ inch in diameter are sold at a less price, and many are used for pickles. Those still larger are sold for table use for whatever they will bring in the market.

After being passed through the machine the sets are elevated by horse power up to different lofts in barnlike buildings made on purpose to store them. The floors in these lofts are made so close together that one has to stoop over in walking about. There are plenty of windows so the hot air of an August day may circulate through and under all the floors. The sets are stored on the different floors, say from four to six inches deep; and I never saw a prettier sight than some of the Bloomsdale pearl onion-sets — miniature onions, perfectly ripened, and they were indeed veritable "pearls." I am not sure but they were handsomer to my eye than would be the real pearls glistening in the crowns of royalty.

Like ourselves, the Landreths have discovered that it is cheaper to have their own repair-shops than it is to depend upon anybody else for repairing their implements. In fact, all the wagons, carts, and other vehicles used on the premises are made by their own mechanics; and many machines that would never be needed anywhere else in the world are made here for their special business. I omitted to tell you that the machine for sorting onion-sets is a combination of cylinders made of wire screen. One cylinder goes inside of the other, and they are of different lengths. The arrangement is such that, when the sets are poured in from an elevated platform, each kind runs out down to the ground into its respective sack, ready to be pulled up into the buildings before mentioned.

The Landreths, after long experience, select the ground best adapted to growing each vegetable. Not only do they select their fields on the Bloomsdale farm, but they have a branch seed-farm at Norfolk, Va., of more than 1000 acres, for growing seeds than can be raised to better advantage further south.

Of course, there are lots of boys and girls on the Bloomsdale farm; and provision is made for these at a very pretty schoolhouse. There are many men who have spent all their lives with their families in the employ of the Landreths. No wonder; for this institution has now been running for 111 years. I can not imagine a prettier sight than a field of onion-sets with men, women, and children engaged in cultivating the crop and keeping it clean. Very likely they have a church as well as a schoolhouse; but I forgot to inquire in regard to that; and possibly a Sunday-school and Endeavor Society. Perhaps some of the Landreths will tell us about it.

As the older members of the firm were absent, one of the grandchildren (or possibly great-grandchildren) showed us around. If I am correct, it was Mr. Fletcher Landreth, a young man of eighteen.

The testing-grounds, where all varieties of garden vegetables advertised by the Landreths or anybody else are tested every year, are so extensive as to bewilder one. Why, it would have taken ever so much more time than I had allotted to my visit, to look over the testing-grounds alone.

Of course, the Landreths have a side-track of their own for loading up cars. These side tracks run manure in from the great cities, and carry out crops of seeds. Ever so many carloads of onion-sets alone are shipped north, south, and west every year. In their testing-grounds sometimes 5000 different varieties are tested. One who has undertaken on a small scale to determine which is the best vegetable out of half a dozen sorts can form an idea of the perplexities of this testing business when it runs up into the thousands.

When you stand over on the railroad track and take a birdseye view of the farms, a very pretty effect is noticed by the inscriptions on the roofs of the buildings. For instance, one great barn will have the word "Landreth's" covering the whole roof. Another building, some distance away, has the word "Garden." Still another barn has the word "Seed," in gigantic letters; and the last one of the group of four will have the word "Farms." All together it reads, "Landreths' Garden Seed Farms."

I was surprised to learn that their cabbage from which they grow their seed stands out in the open ground all winter. I was told about their special treatment necessary to do that, but can not now exactly recall it to mind. In fact, I asked so many questions it is not a little strange that I can not remember the answers to them all. I do not know how many buildings there are on this huge farm, but enough, I assure you, to make a pretty good-sized town. They are mostly in groups. Sometimes the groups are a quarter or even half a mile apart. This is to facilitate getting the crops under cover quickly when rains come up suddenly. Of course, they have steam thrashing-machines and special separators for working every variety of seed required in the home garden. It would not be at all strange if, with their great facilities for doing the work on a large scale, they could furnish good seed for less prices than it would be possible to do on a small scale. I believe most of the seed-farms in the vicinity of Philadelphia purchase their onion-sets of this firm.

By the time we got around to the depot we were pretty well tired out, I assure you, as it was a hot August day, and I regretted again that I did not know better than to undertake to go on foot all over the Landreth establishment in just two or three hours.

By the way, the proprietors have a beautiful album of photographic views of the premises I have tried to describe. There are 24 pictures in all, and there are some of the finest half-tone views in it I ever saw in my life. And, by the way, the Landreths were one of the first to adopt the custom of using photographs from life rather than exaggerated paintings of the products and premises. I was pleased to see on the front cover of said album this little motto:

NO ORDER IS TOO SMALL.
IS TOO MUCH TROUBLE.

I don't know but this would be a pretty good text for some of us who do business on a comparatively small scale.

HOW TO MAKE YOUR TOWN ORNAMENTAL AS WELL AS USEFUL.

A little place called Blake, just seven miles from Medina, comprising a store, blacksmith shop, and about a dozen houses, has just met a streak of luck. The storekeeper, right on the corner, bought about half an acre of land, and proceeded to erect a dwelling. The first thing was to procure a good well of water. He paid some men $24.00 for drilling 48 feet; and at that depth they struck a vein of water that fills a three-inch pipe, and throws it two feet above the surface of the ground. It will not go any higher than two feet, even if the three-inch pipe is reduced to half an inch; but, of course, the larger the pipe the larger the volume. Although this well was drilled only about four weeks ago, the owner has already piped it over into the road, or cross-roads, rather, right in the center of the town. Here he has a very pretty round pine tank, perhaps ten feet across and four feet high. As the well on his premises is a few feet above this tank, a very nice little fountain sends a stream up several feet in the center; and some beautiful goldfish delight the urchins and other people as they sport in the sparkling spring water. Half a dozen teams can drive up to the tank and drink all at once; and in consequence of the severe drouth now prevailing, farmers are coming for miles around with sleds, stone-boats, etc., loaded with barrels, drawing water home to their stock; and these sleds and stone-boats did the writer quite a service, for they converted the loose dust into a bicycle-track almost equal to asphalt pavements. The head of water is sufficient to pipe it right into the greater part of the dwellings of the little town, and, in many places, clear into the upper rooms. The well belongs to Mr. A. K. Freedt, who owns the store and runs the postoffice on the corner.

Now, then, ye people who live in little towns like the above, you probably can not all have an artesian well; but you do not know this really until you have drilled down a hundred feet, more or less, to find out. But every little town can have a windmill and a beautiful watering-place right in the center of the town. The watering-place I have just described did not cost more than ten or fifteen dollars, goldfish and all.

OUR HOMES.

Come unto me, all ye that labor and are heavy laden, and I will give you rest.—MATT. 11:28.

Permit me to say that most of my talk on this text is borrowed from a sermon delivered by Rev. A. T. Reed, at Canaan Center, Wayne Co., O., on Sunday evening, Oct. 3. I shall take only one point of his discourse. Jesus calls all men unto him. "Come unto me," he says. He does not say, "Come to truth, come to honesty, come to temperance," nor even to purity of thought. He sums it all up by saying, "Come unto *me*, all ye that labor and are heavy laden." Now, since the world began, people have tried to substitute something in place of Christ Jesus the Son of God, the mediator between God and man. They have said, and do say now, "My religion consists in being honest; in being upright in deal, and in doing as I would be done by." These people reject the idea of Christ and the Christian religion. They say, if a man would do as he would be done by, is honest and fair toward all his fellow-men, pure in heart, and temperate in his habits, that is enough; and they declare that they are willing to take their chances with the best professing Christian among us. Very likely there are people who set a better example in many of these things than do a good many professing Christians. I confess it has always seemed very hard for me to admit that honesty, purity, and temperance, count for nothing—or, if you choose, count for comparatively nothing when the person refuses to accept Christ Jesus as the Son of God. Perhaps you have heard ministers talk on this subject; and very likely you have not been satisfied with their arguments and statements. Let me give you an illustration, from Bro. Reed, that has made it plainer to me than it ever was before.

Suppose a man in your neighborhood wants to get some public office. He knows what people demand or desire in a public officer. He sets to work with energy and zeal to be a better man. He begins to be kind and neighborly; pays up old debts that nobody ever expected to get; apologizes for his past shortcomings, stops using tobacco, possibly beer-drinking also, becomes an advocate of temperance, has respect for the Bible and Christianity, and makes a sudden and apparently complete change in his whole life. Does this make him a Christian? He may, for the time being, present so clean a record as to put the average Christian to shame. But it is all a *policy* matter. His *heart* is not changed at all. He simply wants to get elected to office; after that he may hold out in his new "departure" or he may not. Pehaps I may say, parenthetically, that the chances are that he will not. What do you think of such a man? Is he a better man than he was before? Well, it seems a little hard to say he is not any better. The effect of his whole life on his neighbors and on the community is certainly better; and we all rejoice to see even such reforms. But how about the man's heart? He is trying to make all his friends and neighbors think he is a better man than he really is. To call things by their right names, he is now, with all his goodness, purity, and temperance, only one sort of hypocrite. Before, he acted out just as he felt. He seldom "put on" any thing, or even tried to make believe he was something he was not. I am sure you see the difference. The man who cultivates all of these virtues from the *right motives* desires to be better in *God's* sight; as to what the community or neighbors may think of it, is a secondary matter.

Now, the Bible teachings are to the effect that accepting Christ as the Son of God sums up *all* these virtues I have enumerated, and even many more; in fact, it sums up all that is good in the human heart. Accepting Christ as your Savior, and your only hope of pardon, embraces all of these things. He is the very essence and embodiment of truth. When Pilate asked him, "Art thou a king?" Jesus answered, "To this end was I born, and for this cause came I into the world, that I should bear witness unto the truth." Permit me to say that I have never yet found a moral man who lived up to all these things as he claimed to do. For a time it would seem as if he were an honest doubter; but where I become intimately acquainted with such people I have always, sooner or later, discovered something that seemed to be a reasonable explanation why they should so persistently refuse to accept Jesus Christ as the Son of God.

Now, friends, permit me to use an illustration that Bro. Reed did not use; and it is a subject that has been lying on my mind, and has been making me feel troubled and anxious. Jesus, when he said, "Come unto *me*," did not say, "Come and be a Congregationalist, a Methodist, a Baptist, an Episcopalian," nor any of these different sects or denominations.

He said, "Come unto *me*." After having come unto him, and making him first and foremost, there certainly can be no objection to uniting with any denomination you think proper. But denomination must never be first. In communion seasons I have frequently heard pastors, in inviting people to partake, say, "Let all who love the Lord Jesus Christ partake with us." I do not know whether this is always the case or not. It seems to me as though it should be so.

When I was having that pleasant trip with Mr. Hugh Vankirk, of Washington, Pa., we passed quite a pretty public building near his home. He is five or six miles from the city, and the little station near his home is called Vankirk Station. There is no church within several miles. Friend Vankirk pointed out the building I mentioned, and I asked him if it was a church.

"No, Mr. Root, it is not a church—it is a Sunday-school. The building was made on purpose for a Sunday-school, and has always been used as such. Of late we have been having preaching almost every Sunday. The ministers are of various and different denominations; but as the audience is made up also of various denominations we have it understood that the speaker is not to use the house and occasion to further the interests of his particular school or organization."

My attention was aroused at once, and I asked a good many questions. The building was erected by the people. Friend Vankirk, who is a mason and brick-layer, laid the foundation and built the chimney. Others did likewise according to their trades. Then a large enthusiastic Sunday-school, with a fine library, was organized. The minister who preaches is paid cash down after the sermon; and, if I am correct, they have some money ahead. The Sunday-school teaches Christ Jesus and nothing else. The various ministers who come by invitation to preach, preach only Christ Jesus, and the people all come. If any particular denomination were to preach, there are a good many who would not come. We who live in country places know all about this. In little towns all over the United States there are often three or four churches—a good many times three—where there are not people enough in the whole three churches to make one fair-sized audience, or to pay a minister a decent salary. I have often thought, and frequently said, that it was a pity we could not do with these churches as the bee-keeper does with his weak colonies of bees when winter comes. He breaks up three or four colonies and unites them in one. If left to go through the winter alone they would all die, or pretty nearly so. United they make a rousing colony that can drive out intruders, and make a stand against any enemy. Is it not so, dear friends, with the churches? A saloon tries to come into a town. The people are so busy in settling differences between their denominations that they forget to fight the saloon-keeper, and he gets their boys away from the Sunday-school. If the little town were united—if the Christian people were all one body, pulling the same way, repelling sin from every point of the compass—the saloon, the dancing-teacher, and the professional gambler would be afraid of them, and would conclude the town was not a good locality for their occupation. I do not know what should be done to bring about this happy millennium, where all people shall understand and say that the only really *important* thing in this world is to come to Christ—"come unto *me*."

Mr. Vankirk told me the people were all pleased with this union Sunday-school and union preaching. He said the only objection he had ever heard was from ministers themselves. Dear friends, perhaps I am getting on dangerous ground. If so, may the dear Savior set me right; but is it true that it is the *ministers* themselves who are greatly responsible for so many sects? Our own Congregational Church has made several blunders, to my knowledge, in building new churches and trying to build up a church where another denomination was not needed. Within ten miles of where I now sit a beautiful brick church with stained-glass windows stands unoccupied, or at least has preaching only at intervals by a pastor who does not live in the town. The expense of building this church pretty nearly ruined one or two good old farmers financially; and yet the church stands empty and unused a great portion of the time.

One more thing I want to speak of, and perhaps I am treading on dangerous ground again. The ministers of these three or four churches where only one is needed are very poorly paid. As they are poorly paid they have to work at something else to make a living. A cheap minister or a cheap school-teacher is a very poor investment. I need not enlarge on this point. The man who is to expound the Scriptures should be one of the best and brightest men in the whole community, and the people should pay enough to support a good man.

Please bear with me a little further when I suggest that the Electropoise people would never have found a hundred *ministers of the gospel* in our land to help sell their fraud, were it not true that there is a mistake somewhere. Dr. Wilford Hall, as you may remember, pushed his water-cure fraud mainly through ministers of the gospel—that is, people who had "Rev." attached to their names. I know, dear brothers of the clergy, there are many devoted and saintly men who are very poorly paid for their services. I know of some who have been promised a meager salary of considerably less than $1000 a year, but who never got—at least not promptly—the amount subscribed. I do not know how many places there are where Christian people of all denominations unite to support a church and pay a minister. I mentioned one such I found in Florida. There are difficulties in the way that I confess I am not able to manage. We can get along with communion very well; but during a revival season, when new converts are to be added to the church, I confess I am not equal to the task of deciding how it should be done; but I have unbounded faith that the dear Savior, who invited us clearly and plainly to come to him with all difficulties of whatever nature, will manage this one too, especially since it is only a question as to *how* and in what *manner* we shall come to him and bow at his feet, as we give him our lives and "crown him Lord of *all*."

A SERMON TO BOYS AND GIRLS.

THE BOYS' BAD BARGAIN.

By W. T. Elsing.

A great many years ago twin brothers were born. I do not know whether their mother dressed them alike, as mothers frequently do now, but, although they may have worn the same kind of clothes, there never were twins who differed so much as these two boys. They were just as different as day is from night, or as light from darkness. One of the boys was very quiet He was a shepherd; and at night, when he had brought the flock into the fold, he would go to his tent, kindle his fire, and cook his supper. But the other brother was very restless; he did not like walking quietly behind a flock of sheep, but was far more at home when on the chase. So he became a hunter, and went out from the tent every morning with the bow across his shoulder, and case full of arrows.

Jacob, the shepherd boy, would often run into his mother's tent with a pitcherful of milk, or a bundle of wool for her to spin into coats and dresses; therefore the mother loved him. Esau, the other brother, often came home, carrying on his shoulder not only his faithful bow but a good fat deer for his father.

In the country where these boys lived, there was a law that the first-born son should receive a double portion of his father's money When the father died, the first-born son also received his father's blessing and other great honors. This was called the birthright, and belonged to Esau, the hunter.

One day Esau had been hunting all day, and had become very hungry in roaming through the fields for game. At last he came to his brother's tent. Jacob had his sheep in the fold, and had cooked some porridge of red bean meal. The whole tent was full of the delightful odor of the steaming porridge-pot. The hungry hunter said, "Give me of that red." He meant of that red porridge; but a hungry man uses few words. Jacob, who was very quiet and never in a hurry, but always ready to drive a sharp bargain, said:

"Esau, you know you were born a little before me, and, according to our law, the birthright is yours; but I'll tell you what I will do with you. If you will give me your birthright I will give you my porridge."

Esau said, "Well, I am going to starve any way, if I don't get something to eat. I may just as well sell the birthright, for the best birthright in the world is of no value to a dead man. Give me your porridge and I will give you my birthright."

But Jacob, who was in 'some ways a mighty mean boy, and who always looked out for the biggest end of a bargain, said, "You swear to me, that you will sell your birthright for the porridge."

Esau then made a solemn promise before God that he would stick to the bargain. So Jacob gave to Esau the porridge, and some bread and water.

After Esau had eaten he went away and fell asleep in his own tent; but, oh how sorry he was afterward that he had made such a bad bargain! Day and night, with tears and a sad heart, he tried to get the birthright back, but he failed. Esau has ever since been known as the boy who made a bad bargain. Esau made a bad bargain because he gave more than he received; and every boy who gives more than he receives makes a bad bargain. Esau has been dead nearly 4000 years; but his foolish bargain has never been forgotten.

But although the first Esau is dead, there are a good many boys who might with good right be called "Esau." Some of these boys are very popular, just like Esau: they take a great deal of interest in manly sports. There are many of them fine fellows, too, but they make bad bargains, and therefore we will call them "Esau."

I.—THE SMOKING ESAU.

The boy who begins to smoke makes a bad bargain. We will say he gives a nickel for his first cigar. Now, what does he get? A white, deathly face, an awfully sick stomach, and sometimes a good whipping from his mother. I think there is not a boy in America so foolish that he would not rather have a nice bright five-cent piece than a pale face, a sick stomach, and a whipping. So you see the boy makes a bad bargain with his first smoke. But, you say, it is not fair to judge by the first smoke. The boy will not always be sick, and his mother will not always object to his smoking. That is true. Let us, therefore, take not the first, but the one hundredth smoke. What does the boy now give for smoking? He gives not one but a good many five-cent pieces. It will all depend upon how much money he has. Suppose he is a poor boy, and spends only five cents each day until he is twenty-one. This makes 35 cents a week, \$18 20 a year, which, put in a bank at a low rate of interest, would become a sum of over \$275 by the time the boy is twenty-one. Now, what does the young smoker get for his \$275? He gets only one thing, and that is pleasure There is not any other advantage in smoking; and the only question is, "Does it pay to acquire an appetite which is not natural, at so great a cost?"

"Ah! but," you say, "I get something else. I am in the fashion."

I do believe that you are not in the fashion with the majority of good people. If I should call on all the old smokers in America, and say, "Gentlemen, which boys do you admire most—those who smoke or those who do not smoke?" I am quite sure the majority of them would say, "Although we smoke ourselves, we like the boys best who do not smoke." The boys who do not smoke are looked upon by all sensible people as the best.

The smoking boy makes a bad bargain, because all good physicians will tell you that smoking is bad for a boy who is growing. To the boys who already smoke, and are not willing to give it up, let me say that cigarette-smoking is the worst thing you can do. The nicotine, or tobacco-oil, is a deadly poison; and if you are determined to smoke, the least dangerous way is to smoke a long clay pipe, which partly draws in the poison.

But smoking is a bad bargain, because, when you once begin it is hard to give it up. A little over three hundred and fifty years ago the only smokers in the world were the North American Indians. The tobacco-plant was first brought to Spain, and there it grew in the yards as an ornamental plant until a man named Nicolo Manardes said, "Tobacco is good as a medicine." Men all over Europe began to use it; but it was at first looked down upon by almost every government. Two hundred and fifty years ago the men who smoked in Russia had their noses cut off. In Turkey the Sultan beheaded smokers in the most cruel manner. In England, King James I. was very bitter against it. He said, "It is loathsome to the eyes, hateful to the nose, harmful to the brain, and dangerous to the lungs; and the stinking fumes resemble the smoke of the bottomless pit." But all the opposition of kings did no good. The habit was stronger than czar, sultan, or sword. The people kept on smoking. They liked it, and the habit grew stronger and stronger, until to-day almost every man in Persia and Turkey smokes. Millions in Europe smoke; and in Asia, not only the men but women, and even the girls, smoke.

A habit which, in three hundred years, spread over the whole world, must be fearfully strong It is with smoking as it was with the threads with which the Lilliputians bound Gulliver. The story is so interesting I will tell it to you. Gulliver was a sailor and a great traveler He had been in about every part of the world. One day he was wrecked on the shores of a strange land All of the crew were drowned but Gulliver. He was very tired and wet, so he lay down on the warm sand and went to sleep The people who lived on the island were very little, and were called Lilliputians. The largest were not as big as Gulliver's thumb. When they saw him, like a mountain, sleeping on the sand, they were frightened, but soon came nearer. They held a mass-meeting, and determined to take Gulliver prisoner. So they got ladders and ropes, and came to him. They put the ladders on the sides of his body, and climbed up. Then they carried thousands of threads across Gulliver's body, and drove little pegs into the sand to fasten the threads, so they worked a great many hours. Finally Gulliver woke up and tried to stir; but he was fastened so securely he could do nothing. The little men shot thousands of small arrows at him, and they pricked like needles in his face. One of the little threads was no stronger than a cobweb; but many of them bound Gulliver so firmly that he could not get away.

It is just so with the habit of smoking, and therefore I say the boy who begins to smoke runs a chance of losing his freedom, his money, and his health, which is also a bad bargain.

II.—DRINKING ESAU.

If the boy who smokes makes a bad bargain, the boy who learns to drink makes a much worse one. Drinking is much older, more expensive, more dangerous, and more degrading than smoking. If all the money which is spent for strong drink in our country were divided equally among the different families, rich and poor, each family would receive $90.00 a year. In the United States alone, 75,000 men die every year of drunkenness; 205 every day, one every seven minutes. The cup has killed far more people than the cannon. You all know how much sorrow and wretchedness are caused through strong drink. Many children are suffering this very day because their poor fathers learned to drink, and made the bad bargain years ago.

A great many years ago the Lacedemonians, a people of Greece, used to make their slaves drunk once a year. They brought these drunken men into a circus-ring that all the free children might see how disgusting a drunken man looked and acted, and that the children might never follow the example of the slaves.

Not long ago a poor drunken boy said he was not afraid to fight any man in the town. When he could get no one to fight with him, he went away to the railroad track. There the engineer saw him standing with his fists doubled up, ready to strike the engine. It was impossible to stop the express train quick enough, and the poor boy's body was crushed. He made a bad bargain; he gave his life for a drink.

A drinker with inflammation in his eyes said, "Doctor, can you cure my eyes?"

The doctor replied, "I can if you will stop drinking."

"Give up my drinks? Oh, no! Good-by, eyes," and he sold his eyes for a glass of whisky.

III.—THE SWEARING ESAU.

The boy who swears makes a terribly bad bargain. I can see how a hungry boy might be lead to steal a loaf of bread, if it were steal or starve, but I can not understand why any boy should ever swear. No one ever became any richer, wiser, or better for swearing. The biggest fool can swear as well as the wisest scholar. Swearing is hurtful to him who does it. It shocks all good people, and it grieves God. Swearing is the language of hell. The swearer is like a foolish fish who bites at a bare hook. Smoking, drinking, and swearing come to us like the Arab's camel. On a very cold night an Arab was sleeping in his tent, and the camel was on the outside. The camel woke the master up and said, "Master, it is very cold out here; may I please put my nose into the tent?"

"Yes," the Arab said, "You may put just your nose in."

"O master! it is so nice in your tent! won't you please let me put my head in too?"

After a while the master said, "Yes, put in your head."

Soon the camel pushed a little farther, and begged that he might put his shoulders in. This was also granted. Then without any other word the camel pushed in his whole body.

"It is very uncomfortable here," said the Arab.

"Yes," said the camel. "It would be much more comfortable for me if you would go out and give me the whole tent."

Boys, the Arab made a bad bargain when he allowed the camel to put in his nose; and when we allow the first glass to touch our lips we make an awfully bad bargain with the old demon Alcohol.

I never could raise enough potatoes to do us before I got your potato-book. I planted 2 bushels then. Now I have to plant only half a bushel, and raise more than enough to do us. In 1889 I raised 48 measured bushels from ½ bushel planted and cultivated according to your book. Nearly every one laughed at me for giving such shallow cultivation—said that I only scratched around; but they did not laugh at the yield.

Morgan, Ky., July 28. J. P. Moore.

HIGH PRESSURE GARDENING

With the crowd of business we have had during the past season I did not get over to see my neighbor Terry until well along in September. I said to myself several times, "Now, old fellow, first you know something will turn up that will make you feel sorry you have not kept track of what is going on over in Summit Co., especially at friend Terry's." When I got hold of the *Practical Farmer* for Sept. 11 I thought that very thing, for here is what I found. Let me say, first, that some college (agricultural) professor had been severely criticising Terry's teachings in regard to cutting potatoes to one eye, and Terry replies. In his reply he incidentally gives the result of an experiment made during the past season, and I clip as follows in regard to this experiment:

SEVENTY-FOUR HILLS FROM ONE TUBER.

Last May I took one medium-sized tuber and cut it into one-eye pieces, about such as we usually plant. Then I carefully cut each of these one-eye pieces into about six smaller pieces, in such a way as to leave a little point of the eye on each piece, as well as I could. The potato is a new one, not named, of strong vitality. Do not write and ask about it, as it is not on the market yet. Mr. Wm. Henry Maule, the well-known seedsman, sent me the potato. It was a fine-looking tuber, and took my fancy. So I thought I would raise as many from it as I reasonably could. It came after our crop was planted, and we had no ground plowed that was suitable. So after mowing off the clover I plowed two square rods of clover sod. This was a great mistake. The clover had pumped the water out of the subsoil pretty thoroughly. The ground was too dry. I wished a hundred times that I had known beforehand, and plowed the land early, and kept surface harrowed. And I would have put half a ton of manure on last fall, too, if I had known it. Then I might have done something. Well, I got the potatoes started, although it was too dry for a time. Now we are getting plenty of rain. There are 74 hills growing in about two square rods. The hills are 33 inches apart each way. They now cover the ground about as well as you often see it done. I think any grower would say there were tops enough on the ground. They are all good. Eighty tubers would plant an acre. They are not ready to dig yet, so I will not say any thing about the yield, but we have the plants. Only about one-sixth of an eye was planted to a hill! I could have carried it further and got more hills, but my wife said: "What is the use? only experts will believe what you have done now." So I quit. Of course, these very small pieces required more care in cutting, and finer soil, and better attention, than whole-eye pieces would, and far more than whole tubers used for seed would. This fine cutting is not practical at all, except when you want to get all you can from a few tubers. But it helps to establish my point, and very greatly, too, that I can make all the eyes grow, and get good thrifty plants from all of them, practically.

After reading the above, you may be sure I was not long in getting on my wheel and going over to see the 74 hills grown from one tuber. Every hill was perfect, and the single vine in each hill was remarkably strong and rank. Friend T. put his hand into one of the hills and took out two tubers weighing, I should judge, a pound or more, but they were then not quite done growing. I estimated there would be about a barrel of potatoes as the result of that one tuber. The potatoes have now been dug, and, if I remember, there was not quite a barrel, but pretty nearly. I at once wrote to Maule, asking the price of a single tuber; but he told me there would be none for sale until the year 1899. The season of 1898 will be devoted to increasing the stock; but I finally did get a tuber to experiment with in the greenhouse, with the understanding that the stock belongs entirely to Wm. Henry Maule. I am going to work with this one tuber at once, and increase it by means of the jadoo fiber and greenhouse all I possibly can until time to plant potatoes next spring. Oct. 1, 1898, Maule is to pay me a reasonable price per bushel for as many potatoes as I succeed in growing in just one year. This particular new potato seems to possess earliness and vitality; but we can not just now tell whether it is Terry's skill or the remarkable productiveness of the potato—perhaps both.

Now, then, friends, has anybody ever tried the experiment of seeing how far one potato could be made to increase in just one year by propagating it during winter as florists grow geraniums, colei, and other similar plants? I will try to report progress to you as we go along. The worst trouble I anticipate is in getting the potato to sprout and grow so soon after it has been dug.

A REFRESHING CONTRAST IN THE WAY OF TREE AND PLANT CATALOGS.

In Lovett's pamphlet for autumn of 1897 we found the following in regard to two of our new friends:

> GOLDEN MAYBERRY.
>
> This unique fruit may be all that is claimed for it, but candor compels us to state that we are growing impatient to see for ourselves what it is actually like. We have now had it for three years; and, although the bushes grow well, they have as yet failed to produce any fruit, and we hesitate to longer publish the descriptions of the originator and disseminator until we *know positively* it is what it is claimed to be.
>
> STRAWBERRY-RASPBERRY.
>
> From an intimate acquaintance with this berry we are convinced it is not a hybrid of the strawberry and the raspberry, as claimed, but it is a true raspberry of herbaceous habit (the top dying down and the root surviving as with the pæonia and many cultivated species of flowering plants), and has no strawberry blood in it whatever. It has proved to be a wonderful grower, always clean and vigorous, with a mass of deep-green foliage; and although it suckers immoderately it is extremely hardy, and is prolific in bearing for a period of some ten or twelve weeks — from early in July until frost. The berries are of enormous size, of the richest shade of bright crimson imaginable, and are in very truth the most exquisitely beautiful of any berry we ever looked upon; but, alas! it is sadly deficient in flavor. Some have compared it to dried apples, others to a sweet orange sucked dry. Seriously, it is decidedly insipid as a dessert fruit, but, strange as it may seem, when cooked it is rich, sweet, and good.

The above really rejoices my heart. The Lovett people have finally tested these things on their own ground, and have come out square and honest about it. Their experience is exactly like my own. The Logan berry, however, promises to be something of real value. On our grounds it has not as yet borne fruit enough, but it will, perhaps, when it gets older.

GARDENING FOR THE LATTER PART OF OCTOBER.

In addition to what was said in our last issue, I would again remark that now is the time to commence gardening under glass. If you have valuable varieties of strawberries, you can keep them putting out runners, and increasing, clear on till Christmas, by the use of a few sash. But let me suggest where you are in danger of making a mistake. Shelter your plants with the sashes whenever there is a hard freeze. Even quite a frost will not injure strawberries at all. When the ground begins to freeze, however, so as to be hard, then put on the sash. But do not cover the plants up during a snowstorm. Strawberries seem to rejoice in being covered with snow. I have actually seen harm done by leaving the sashes on so as to keep *off* the snow during a severe freeze. Strawberries and other hardy plants are better off with a covering of snow than with sashes; and the same will apply to lettuce where it is sufficiently hardened — say cold-frame lettuce-plants. Whenever there is severe freezing, however, without any snow, then have your sashes on. Keeping this in mind will not only save you labor in handling sashes, but it will really save your plants. The snow is nature's covering and protection. Permit me to say right here that we have put in some new and expensive machinery for making an improved article of hot-bed sash, and I believe our prices are considerably below those of good substantial sash anywhere else. See prices in Special Notices.

Our fall catalog — that is, our usual catalog with prices changed according to the present date (so far as we can fix prices at this time), will be ready to mail to applicants soon after this reaches you.

OUR BRIEF VISIT TO T. GREINER, LA SALLE, NIAGARA CO., N. Y.

Friend Root:—I have just been reading what you say about your visit here (page 713). It seems to me you have "put it on a little thick." In fact, I knew that, in the hurry of summer's work, and in consequence of my being busy otherwise, the place had a neglected appearance; but had I been fortunate enough to be at home when you came, I could have shown you many things of interest that the unguided visitor could not possibly have found or discovered. The best sights you might have seen are nearly half a mile away from the home place.

In regard to that new onion which your printer named "Garganus," let me state that it is Burpee's Gibraltar, a most excellent variety for fancy trade, equal to the imported Spanish, nearly as large, as mild, and of a light straw color; must be sold promptly, as it does not seem to be a good keeper, especially in a wet season like this. I hope that next year we shall be able to procure seed, at least by the ounce; for the past three years we could get it only by the packet, at rather high prices. As to the coal-ash bed, I believe a good layer of manure *under* the coal ashes was responsible for the great thrift of the plants more than any thing else. T. GREINER.

La Salle, N. Y., Oct. 8.

Friend G., I know how it is from my own experience. Sometimes visitors whom I very much wanted to see have gone over our grounds and entirely overlooked the most important things because I was not there to give particulars. Many thanks for correcting me about that onion. Since you mention it, I remember now that friend Weckesser did call it Gibraltar instead of Garganus; and, by the way, we will try to have some of the Gibraltar for sale, at least in packets, another season.

Books for Bee-Keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, postpaid, on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults, so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines,‡, foreign.§ The bee-books are all good

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice, that you can judge of the size of the books very well by the amount required for postage on each.

8 | Bible, *good print*, neatly bound 20
10 | Bunyan's Pilgrim's Progress** 50
20 | Illustrated Pilgrim's Progress** 75

This is a large book of 425 pages and 175 illustrations, and would usually be called a $2.00 book. A splendid book to present to children. Sold in gilt edge for 25c more.

6 | First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50 c. Two copies will be sold for 75 cents. Postage six cents each.

5 | Harmony of the Gospels 35
3 | John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon* 10
1 | Gospel Hymns, consolidated Nos. 1, 2, 3, and 4, words only, cloth, 10 c; paper 05
2 | Same, board covers 20
5 | Same, words and music, small type, board covers 45
10 | Same, words and music, board covers .. 75
3 | New Testament in pretty flexible covers ... 05
5 | New Testament, new version, paper covers. 10
5 | Robinson Crusoe, paper cover 10
4 | Stepping Heavenward** 18
15 | Story of the Bible** 1 00

A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

| "The Life of Trust," by Geo. Muller** 1 25
5 | Tobacco Manual** 45

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy that reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

Postage [Price without postage.
15 | A B C of Bee Culture. Cloth 1 10
| Advanced Bee Culture, by W. Z. Hutchinson 50
3 | Amateur Bee-keeper, by J. W. Rouse 22
14 | Bees and Bee-keeping, by Frank Cheshire, England, Vol. I.§ 2 36
21 | Same, Vol. II.§ ... .r 2 79
or, $5.25 for the two, postpaid.
10 | Bees and Honey, by T. G. Newman 90
10 | Cook's New Manual. Cloth 1 15
5 | Doolittle on Queen-Rearing 95
2 | Dzierzon Theory 10
3 | Foul Brood; Its Natural History and Rational Treatment. 22
1 | Honey as Food and Medicine 05
15 | Langstroth Revised by Ch. Dadant & Son. 1 10
10 | Quinby's New Bee-Keeping. 1 40
| Thirty Years Among the Bees, by H. Alley 50
| Handling Bees, by Langstroth. Revised by Dadant 08
| Bee-keeping for Profit, by Dr. G. L. Tinker 25
5 | The Honey Bee, by Thos. William Cowan .. 95
| British Bee-Keeper's Guide Book, by Thos. William Cowan, England§ 40
3 | Merrybanks and His Neighbor, by A. I. Root 15
4 | Winter Problem in Bee-keeping, by Pierce 46

MISCELLANEOUS HAND-BOOKS.

5 | An Egg-Farm, Stoddard** 40
| Amateur Photographer's Hand-book** 70
5 | A B C of Carp Culture, by Geo. Finley 35
5 | A B C of Strawberry Culture** By T. B. Terry 35

Probably the leading book of the world on strawberries.

3 | A B C of Potato Culture, Terry** 35

This is T. B. Terry's first and most masterly work. The book has had an enormous sale, and has been reprinted in foreign languages. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. It has 48 pages and 22 illustrations.

| Barn Plans and Out-Buildings* 1 50
| Canary Birds. Paper, ... 50
2 | Celery for Profit, by T. Greiner** 25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once, without any assistance except from the book.

10 | Draining for Profit and Health, Warring .. 1 35

This is, perhaps, the most systematic, comprehensive, and thorough work on grape culture now in print; in fact friend Fuller here tells us how, by easy steps, to make any grapevine come into the work, and make a pleasant, orderly appearance: and he makes it as attractive as a piece of fiction; and the best part of it is, that you get great crops of beautiful grapes during almost any kind of season. We have tested the system, and know whereof we speak.

8 | Domestic Economy, by I. H. Mayer, M. D.** 30

This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life-study. The regular price of the book is $1.00; but by taking a large lot of them we are enabled to make the price only 30 cts.

10 | Farming for Boys* 1 15

This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

7 | Farm, Gardening, and Seed-Growing** 90

This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 166 pages.

10 | Fuller's Grape Culturist ** 1 15
12 | Gardening for Pleasure, Henderson* 1 35

While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 404 pages and 203 illustrations.

12 | Gardening for Profit** 1 35

The latest revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts.

8 | Gardening for Young and Old, Harris** ... 1 25

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

10 | Greenhouse Construction, by Prof. Taft** 1 15

This book is of recent publication, and is as full and complete in regard to the BUILDING of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

5 | Garden and Farm Topics, Henderson** 60
| Gray's School and Field Book of Botany ... 1 80
5 | Gregory on Cabbages; paper* 20
5 | Gregory on Squashes; paper* 20
5 | Gregory on Onions; paper* 20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

15 | How to Make the Garden Pay.** 1 35

By T. Greiner. This is a new book, just out, and it gives the most explicit and full directions for gardening under glass of any book in the world. Those who are interested in hot-beds, cold-frames, cold-greenhouses, hot-houses or glass structures of any kind for the growth of plants, can not afford to be without the book.

| Handbook for Lumbermen 05
10 | Household Conveniences 1 40
2 | How to Propagate and Grow Fruit, Green* 15
10 | How to Get Well and Keep Well 90

An exposition of the Salisbury system of curing disease by the "lean mean diet."

2 | Injurious Insects, Cook 10
10 | Irrigation for the Farm, Garden, and Orchard, Stewart* 1 10

This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

7 | Market-gardening and Farm Notes, by Burnett Landreth 75

The Landreths are the pioneer seedsmen of America; and the book is worth fully as much as we might expect it to be. I think I received hints from it worth the price, before it had been in my hands fifteen minutes. It is exceedingly practical, and tells what has been done and what is BEING done, more than it discourses on theory.

3 | Maple Sugar and the Sugar-bush** 35

By Prof. A. J. Cook. This was written in the spring of 1887 at my request. As the author has, perhaps, one of the finest sugar-camps in the United States, as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written in Prof. Cook's happy style, combining wholesome moral lessons with the latest and best method of managing to get the finest syrup and maple sugar, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses wants the sugar-book. It has 42 pages and 35 cuts

4 | Peabody's Webster's Dictionary 10

Over 30,000 words and 250 illustrations

5 | Manures; How to Make and How to Use them; in paper covers. 30

6 | The same in cloth covers 65

Covering the whole matter, and discussing every thing to be found on the farm, refuse from factories, mineral fertilizers from mines, etc. It is a complete summing up of the whole matter. It is written by F. W. Sempers.

3 | Onions for Profit ** 40

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and interest that characterize its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

| Our Farming, by T. B. Terry** 1 50

In which he tells "how we have made a run-down farm bring both profit and pleasure."

This is a large book, 6x9 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetition, even if he has read all of Terry's little books. I should call it the brightest and most practical book on farming before the world at the present day. The price is $2.00 postpaid; or clubbed with GLEANINGS for 2.50. Those who are already subscribers to GLEANINGS may have it postpaid by sending us 1.50 more. We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money's worth after he has read it. If ordered by express or freight with other goods, 10c less

1 | Poultry for Pleasure and Profit** 10
8 | Practical Floriculture, Henderson* 1 10
10 | Profits in Poultry* 75
2 | Practical Turkey-raising 10

By Fanny Field. This is a 25-cent book which we offer for 10 cts.; postage, 2 cts.

2 | Rats: How to Rid Farms and Buildings of them, as well as other Pests of like Character** 15

1 | Silk and the Silkworm 10
10 | Small-Fruit Culturist, Fuller 1 10
10 | Success in Market-Gardening* 90

This is a new book by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drought threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings

10 | Talks on Manures* 1 35

This book, by Joseph Harris, is, perhaps, the most comprehensive one we have on the subject, and the whole matter is considered by an able writer. It contains 366 pages.

7 | Ten Acres Enough 75
2 | The Carpenter's Steel Square and its Uses. 15
10 | The New Agriculture; or, the Waters Led Captive (a $1.50 book) 40
2 | Treatise on the Horse and his Diseases 10
5 | Tile Drainage, by W. I. Chamberlain 35

Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as

3 | Tomato Culture 35

In three parts. Part first—by J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general. This little book is interesting because it is one of the first rural books to come from our friends in the South

3 | Vegetables under Glass, by H. A. Dreer** 20

This is a new book by a veteran in the work, full of illustrations from real life, and by all odds, the most valuable book we have ever had for such a small price.

3 | Winter Care of Horses and Cattle 35

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in the book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects of the Microscope** 47
8 | What to Do and How to be Happy While Doing It, by A. I. Root 50

THE A. I. ROOT CO., MEDINA, O.

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Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

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Will furnish GLEANINGS one year—24 issues—to a new subscriber, and one untested Italian queen, during the month of October only, for the price of the journal alone—namely, $1.00. These queens are catalogued at 75 cents each. By sending us $1.00 you will get the queen, 75 cents, and the journal for only 25 cents.

If you are already a subscriber, and would like to get the queen, send us $1.00 with a new name for GLEANINGS, and we will send the queen to you, and the journal to the new name sent.

Remember this offer is good only until Nov. 1.

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With poultry, bees, and flowers. Particulars free.

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Scio, - Harrison County, - Ohio.

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Shipping-cases for Honey,
AT THEIR PRICES—THE FINEST MADE.

CASH FOR BEESWAX.

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No cheap Queens to sell; but the best.

Golden 5 band, or 3 band from imported mother. Untested, 75 cts.; tested, $1.00.

L. BEAUCHAMP, Box 613, San Antonio, Texas.

Queens, Untested queens, 50c each; tested, 75c; Breeders, $2. Either leather or golden. My golden breeders breed all 5-banded bees.

W. H. LAWS, - Lavaca, Ark.

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486, 488 & 490 Canal St., Corner Watts St., N. Y

Honey and Beeswax.

Liberal Advances Made on Consignments.
Wholesale Dealers and Commission Merchants.
Established 1875.

SWEET-CLOVER SEED in the hull, raised this season, 1897, at 4 cts. per pound. Address
JOSEPH SHAW, Box 64, Strong City, Kan.

In writing advertisers mention this paper.

SPECIAL NOTICES FROM BUSINESS MANAGER

MAPLE SUGAR.

We have on hand about 150 lbs. of No. 1; 450 lbs. of No. 2, and 100 lbs. of No. 3. We offer this in small lots at 9, 8c, and 7c per lb. respectively for the three grades; 50-lb. lots at ½c per lb. less; barrel lots of about 300 lbs. at about at 1c per lb. less.

We have also a few gallons of good clear syrup, not first run, at 85c per gal.; 5-gallon lots at 80c. We can also get on short notice first-grade syrup at about 90c per gallon.

HONEY MARKET.

Sales of both comb and extracted honey have been very good so far this month. Prices remain the same as quoted in Oct. 1st issue. We are handling more than we did last year, and shall be glad to hear from those who have honey to offer. In writing, please state how much you have, stating amount of each grade; also how it is put up, etc., to save correspondence. Also state lowest price you will take for your crop, and give us freight rate to Medina if possible. We are especially in need of light extracted just now.

GREENHOUSE AND COLD-FRAME SASH.

Having taken a job requiring a large amount of mortising, we have added to our equipment of machinery a chain mortiser, and are now prepared to furnish greenhouse and cold-frame sash, made in the ordinary way with mortise and tenons. If these sash are shipped in the flat (K. D.) it will not be quite so easy to put them together as the rabbeted style we have been making. After they are well put together they will be better, stronger, and more durable. If shipped put together the freight is more than it is when shipped in flat. Sash put together go at first-class rate of freight, either with or without glass. We will furnish these sash in flat as before at same price; viz., 70c each; $3.25 for 5, or $6.00 for 10 sash, 3 feet 4 inches wide by 6 feet long for 4 rows of 8-inch glass, or three rows of 11-inch glass. Sash put together will be 10 cents each extra. Glass included will add another dollar to the price of the sash put up.

SECOND-HAND ENGINES AND DYNAMO FOR SALE.

We have grown beyond the capacity of our 75-light dynamo to furnish us with adequate light, and are compelled to put in a larger machine. In doing so we have decided that it will be economy to put in a machine large enough to furnish electricity to run by electric motors our printing machinery and machine-shop, instead of using our present method of carrying steam long distances in pipes and running several small steam-engines. These changes necessitate the throwing out of our 75-light dynamo and two small engines, and possibly two more a little later.

We offer for $75.00 a 75-light, 88-volt, Brush dynamo. This machine cost us about $400 seven years ago, and has been doing us good service ever since, and would continue to do so if it were large enough. It is a bargain. Further particulars to those interested, on application.

One 7½-H. P. upright engine, which has been running our presses and other machinery in our printing department. We offer this for $85.00 This size, when new, sold for $125, and this has had the best of care, and for service is as good as new. We also offer a 10-H. P. engine for $100; same general description. This is just the right size for running the dynamo.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

SENDING MONEY LOOSE IN A LETTER.

I would urge all the friends in remitting to use a bank draft, express money order, or postoffice money order for any amount over $1.00. If you can not get either of the above, then have the letter registered, which costs only 8 cents. I am very sorry to say that, for six months past, there has been considerable evidence to the effect that somebody is tampering with the mails. We have promptly reported to the Department at Washington, and they have been making investigations for six months. Notwithstanding this, every little while we are pained to hear of losses. There have been more for the past season than for several years past, but we hope to be able soon to get hold of the culprit. Please read again our instructions for sending money, that go out with every catalog.

PRICES OF SEED POTATOES FOR 1898.

I suppose nobody can tell just now very much about what potatoes will be worth next spring; but from all the facts I can gather from different localities all over the United States it is pretty certain that prices will advance rather than decrease. And, still further, I have not been able to find prices anywhere as low as I gave in the table in our issue for Sept. 15, page 684. In fact, several kinds are sold out, or nearly so, and we can not replace them at the prices offered there. Until further notice the prices will be as in the table below:

SCALE OF PRICES ON FOLLOWING POTATOES.

NAME Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
White Bliss Triumph ...	$ 18	$ 40	$ 25	$ 40	$ 75	1 25	$ 3 00
E Thoro'bred, Maule's..	18	40	25	40	75	1 25	3 00
Early Ohio.....	18	40	25	40	75	1 25	3 00
Early Norther	18	40	25	40	75	1 25	3 00
Burpee's Extra Early....	18	40	25	40	75	1 25	3 00
Freeman	18	40	25	40	75	1 25	3 00
New Queen	18	40	25	40	75	1 25	3 00
Monroe Seedling...	15	35	20	35	60	1 00	2 50
Rural New-Yorker No. 2 .	15	35	20	35	60	1 00	2 50
Sir William	15	35	20	35	60	1 00	2 50
Carman No. 1	18	40	25	40	75	1 25	3 00
Carman No. 3	18	40	25	40	75	1 25	3 00
Koshkonong.	15	35	20	35	60	1 00	2 50
Manum's Enormous... ..	30	75	30	50	85	1 50	3 50
New Craig	18	40	25	40	75	1 25	3 00

Where potatoes are wanted for table use, and we may be allowed to make our own selection of such kinds as we have most of, we will make a special price of 75 cts. a bushel or $2.00 a barrel. This latter price is for an immediate order. These *table* potatoes will probably be either the State of Maine, Empire State, or Burbank. We can still furnish seconds at half prices given in the table, of all except White Bliss, Early Norther, and Burpee's Extra Early. We shall put into the seconds badly shaped potatoes, and those that have been cut in digging, and those that are somewhat scabby, but, of course, nothing that is not in *good order* for shipping. I would urge the friends to have their potatoes shipped at once while there is no danger of frost. In fact, I will guarantee them to reach you free from damage by frost if the order reaches us before Nov. 15.

Permit me to call attention to our second-sized Freemans grown by T. B. Terry. The larger ones are just the thing for a baking potato for table use; and at only $1.50 per barrel they are a bargain. We call attention to it now because, for several years past, Terry's second-sized Freemans have been closed out so that a good many were disappointed by getting in their orders late.

We have also made arrangements to furnish the Bovee potatoes, but can not at present state prices, further than to say that ours will be as low as those of any responsible dealer. Peter Henderson claims that the Bovee is earlier than the Early Ohio, and very much more productive. From the few we have grown on our own grounds, we are inclined to think he may be correct in both particulars.

"EVERY THING IN THE BEE-LINE WORTH PRINTING."

On page 721 of our Oct. 1st issue our old friend Henry Alley was permitted to say in the Kind Words department that GLEANINGS contains about every thing in the bee-line worth printing. Of course, he gave this as his *opinion*. I have said once before that I did not mean to let any thing of that kind appear in print again. No doubt friend Alley *meant* exactly what he said; but it was in a private communication, and not intended to be put into a public journal. Had the writer not been off on one of his wheelrides when said pages were made up, there would have been at least a modification of *that* kind word, for it is certainly not true. Neither Ernest nor myself believe it, and it would be unkind and discourteous to the editors of other bee-journals to even insinuate that ours is the *best* one of the lot.—A. I. R.

On account of quarantine restrictions, the South Texas Bee-keepers' Association, which was to meet at the Atchley place the first Wednesday and Thursday in November, has been postponed indefinitely. No public gatherings are allowed along the coast country on account of the danger of yellow fever.

See Our
Great Combination Offer!

GLEANINGS IN BEE CULTURE	1 year,	$1.00
The Mayflower (the great floral paper)	"	.50
Womankind (the great home magazine)	"	.50
Farm News (the great farm monthly)	"	.50
Ten Rare Lily Bulbs - - -		1.00
The Farm News Poultry Book - -		.25
The Womankind Cook Book - -		.25
Total Value. - - -		$4.00
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THE MAYFLOWER published at Floral Park, N. Y., is one of the leading horticultural magazines for the amateur flower-grower. Each number contains a handsome colored plate, and the contents make it a delight to the home.

WOMANKIND. Regular subscription price, 50c. A handsome 20-page magazine containing stories, poems, sketches, bits of travel, and such general literary matter as appeals most strongly to the average reader who wants pure and wholesome literature of the entertaining kind.

FARM NEWS. Regular subscription price, 50 cents. Farm News now reaches more than 80,000 families. It holds this large and loyal following of subscribers, because they regard it as one of the chief essentials of their success in farming.

OUR LILY BULBS. Our lily premium includes these valuable bulbs, all large, sound, and vigorous, sure to grow, and bloom abundantly. 1 Black Calla, 1 Queen, 1 Japanese Double Sacred, 1 Golden Sacred, 1 Celestial, 1 Princess, 1 Guernsey, 1 Bermuda Buttercup Oxalis, 2 Selected. You will be greatly pleased with these.

Our Premium Books.

Womankind Cook Book

This cook book covers the entire range of the culinary art. The recipes in it were selected from the favorite recipes of the readers of Womankind so that in this book you have the best things from several hundred practical housekeepers. More than 10,000 copies have been sold in the past year. You want it. Price 25 cents.

Farm News Poultry Book.

Written to meet the needs and demands of the farm poultry-yard, rather than that of the fancier. It tells all about the different breeds, their characteristics, and what may be expected of them; tells about feeding and hatching, about diseases and their cures, and is, in short, a complete guide to making the hens pay. Price 55 cents.

THE A. I. ROOT CO.,
Medina, = = Ohio.

REDUCED PRICES.

Warranted Italian queens, 60c each; 4 for $2.00. Select warranted, 75c each; 3 for $2.00. Untested, 50c each; 5 or more, 40c each. These prices are good for the balance of this season only. Safe arrival and satisfaction guaranteed.

J. P. MOORE, Morgan, Pendleton Co., Ky.

FOR SALE.—25 Sash, glazed, 3½ x 8 ft. x 2 inch check, glass 12 x 12; also 12 sash, regular make, 3x4 ft. 6 in. x 1⅜; about 1000 ft. 12 x 12 glass, also sash-bars for same. A lot of pipe ¾ in., 1 in., 1¼ in., and some 2 and 3 in.; also a lot of pots, 4, 4½, 5, and 6 in. Will sell for one-half price of new.

J. S. WARNER, Medina, Ohio.

MONEY-MAKING QUEENS.

Here I am, with 300 tested and untested queens to sell or exchange for water-white or dark-amber honey, or for cash at the following prices: Untested, 1 for 60c, 5 for $2.75, 10 for $5.00; tested, 1 for $1.30, 5 for $6.25, 10 for $12.00. These queens are bred from my best honey-gatherers, seven years careful breeding.

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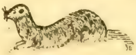
Wewahitchka, Fla.



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Wants and Exchange Department.

WANTED.— Position as apprentice in apiary, by young man; high-school education; some experience with bees. T. P. MARTIN, Greensburg, Pa.

WANTED.—To exchange a fine coon hound, a fine young bird dog, and an English bull pup. I can use a good watch, gun, or any thing in the photograph line. A photograph of either dog can be sent to any address for three 2c stamps. W. S. BRILLHART,
Oakwood, Paulding Co., Ohio.

WHAT will you offer for one b-flat cornet and case, also one e-flat alto, good instruments, practically new? Address Box 321, Clifton, New York.

WANTED.—To exchange 140 colonies of bees, with all fixtures belonging to a first-class apiary, for good horses and mules.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange 28 new volumes Encyclopedia Britannica for honey. O. H. HYATT,
Shenandoah, Page Co., Iowa.

WANTED.—To exchange 16-section non-drip cases at Root's prices, laid down at your station, for fancy comb honey at prices to suit the times. Also 2d-hand 60-lb. cans, 2 in a case, valued at 25 cts. per can, freight paid, for gilt-edged extracted honey in 60-pound cans. Special price on quantity lots. B. WALKER,
Evart, Mich., or 541 Van Buren St., Chicago.

KIND WORDS FROM OUR CUSTOMERS.

You are doing a good thing by clipping bees before shipping. E. D. HOWELL.
New Hampton, N. Y., Aug. 26.

My advertisement in GLEANINGS has brought me a good trade this season, and I have had a good honey crop. I have taken 3000 lbs. from 43 hives up to date, and shall get some surplus yet. J. D. GIVENS.
Lisbon, Texas, Sept. 8.

THE S. & H. CO.
desire to enter into correspondence with all contemplating the purchase of anything in their line. They think they have one of the most complete assortments of strong, smooth, healthy,

FRUIT AND ORNAMENTAL TREES

Small Fruits, Vines, Shrubs, Roses, Bulbs, Hardy Herbaceous Plants Greenhouse Stock, Etc., on the market and invite all buyers to come and see for themselves. They are to be found at the old stand where they have labored faithfully for the past 43 years to build up a reputable business. Catalogues free.

Address **THE STORRS & HARRISON CO., Box 8 Painesville, O.**

TREES AT VERY LOW PRICES. Write now for new fall catalog. It's free and will tell you about the stock we grow and our prices.
ESTABLISHED 1869. 150 ACRES.
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IF YOU WANT BEES

that will just "roll" in the honey, and that are wonderful red-clover workers, also gentle to handle, and exceedingly hardy, then try **MOORE'S STRAIN OF ITALIANS,** the result of 18 years of careful breeding.

Warranted queens, 75 cts. each; 3 for $2.00; per doz., $7.00; select warranted, $1.00; 3 for $2.50. Safe arrival and satisfaction guaranteed. Circular free. Those who have never dealt with me I refer to A. I. Root, who has purchased of me over 850 queens.

J. P. Moore, Morgan, Pendleton Co., Ky.

MUTH'S HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
ROOT'S GOODS AT ROOT'S PRICES,

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "**Practical Hints**" will be mailed for 10 cts. in stamps. Apply to

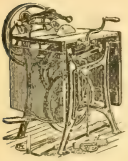
CHAS. F. MUTH & SON, Cincinnati, O.

HONEY-JARS.

1-lb. with Corks, $4.50 per Gr.
Labels for same, 60c per gross.
Cartons, Shipping-cases,
and every thing in the Apiarian line.
Catalog free.

Apiary,
Glen Cove, L. I.

I. J. STRINGHAM,
105 Park Pl., N. Y. City.



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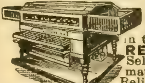


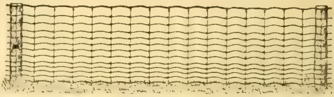
in all the many shows in which it has participated, there must be something in the superiority claims of the **RELIABLE INCUBATOR** Self regulating, entirely automatic, you put in the eggs, the Reliable does the rest. All about this and many things of value to the poultry man in our new book. Send 10 cts. for it.
RELIABLE INCUBATOR & BROODER CO., QUINCY, ILLS.

CASH FOR BEESWAX.

We pay 23c per lb. cash, or 25c in trade, for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 30c for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by *express.*

THE A. I. ROOT COMPANY,



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Our exhibit of native wild animals will be found at nearly all State Fairs and will well repay a call. Don't fail to bring the children. What they learn about **Nature** and **Page Fence** will prove of value in years to come.

Page Woven Wire Fence Co., Adrian, Mich.

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579 The Arcade, CLEVELAND, O.
CALL OR WRITE. ADVICE FREE.

Do You Want An Incubator?

An Honest Machine, Honestly Built.

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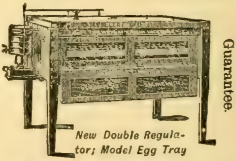

New Double Regulator; Model Egg Tray

"NEW AMERICAN."

Want Our Catalogue?

It's a pretty book of 68 pages, finely illustrated; worth dollars to every poultryman. A 2c stamp gets it.

GEO. J. NISSLY, SALINE, MICH.

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Honey Column.

CITY MARKETS.

MILWAUKEE.—This market for honey keeps pace with any other in values for either comb or extracted. The supply is fair and the demand is only moderate, yet we feel confident that, as the cool weather comes and fruit season passes away, honey will have its share of attention. We will quote 1-lb. sections, white, 12@13; dark, 8@10; extracted, in barrels, kegs, and pails, white, 5½@6, dark, 4½; beeswax, 26@27.

A. V. BISHOP,
Oct. 10. Milwaukee, Wis.

ALBANY.—Fancy white pound combs selling at 12@13; No. 1 white, 10@12; buckwheat and mixed, 8@9; dark extracted, 4@4½, with no great demand for the latter. Would advise consignors to ship by freight, using shipping-cases with handles to carry, and thus avoid the risk of breakage.

CHAS. MCCULLOCH & CO.,
Oct. 20. Albany, N. Y.

DETROIT.—Best comb honey, 11@12; other grades, 9@10½; extracted white, 5@5½; dark, 4@4½; beeswax, 25@26.

Oct. 20. M. H. HUNT, Bell Branch, Mich.

CINCINNATI.—There is no change in our honey market since our last. We quote 10@13c as the range of prices for choice white comb honey, and 3½@6 for extracted honey, according to quality. Demand is exceedingly slow since the beginning of September. Beeswax is in good demand at 20@25 for good to choice yellow.

CHAS. F. MUTH & SON,
Oct. 18. Cincinnati, O.

COLUMBUS.—Fancy white clover, 12½@13; No. 1, 11@11½. We are in the market for white comb honey in any quantity.

THE COLUMBUS COMMISSION & STORAGE CO.,
Oct. 19. 409–413 N. High St., Columbus, O.

MINNEAPOLIS. — Fancy white-clover comb, 10@11; best extracted, 5¼@5½; other grades accordingly. Good time to ship to this market.

S. H. HALL & CO.,
Oct. 20. Minneapolis, Minn.

PHILADELPHIA.—Fancy comb, 13@14; No. 1 white, 12; fancy amber, 10; No. 1 amber, 9; fancy dark, 8; No. 1 dark, 7; white extracted, 5@6; amber, 5; dark, 4@4½; beeswax, 26@27. Honey market very active; trade booming, bright prospects.

WM. A. SELSER,
Oct. 23. 10 Vine St., Philadelphia, Pa.

ST. LOUIS.—We quote white comb honey 11@12; amber, 9@10; dark, 7@8; extracted white, 5¼@6; light amber 4½@5; dark, 4@4½; beeswax, choice yellow, 26; prime, 25@25½; dark, half price.

WESTCOTT COMMISSION CO.,
Oct. 21. 213 Market St., St. Louis, Mo.

BUFFALO. — Will quote prices as follows: Fancy white comb, 12; No. 1, 10@11; No. 2, 8½@9; buckwheat, 7@8; extracted white, 5@6; dark, 4@5; beeswax, 25@28, demand good; Buffalo usually is a good wax market. Honey has been selling slow, due partly to warm weather.

W. C. TOWNSEND.
Oct. 26. Buffalo, N. Y.

KANSAS CITY.—The receipts of comb are large; extracted, light. We quote fancy white comb, 12; No. 1, 10@11; amber, 8@10; extracted white, 5½@6; amber, 4@5; beeswax, 22@24.

C. C. CLEMONS & CO.,
Oct. 20. Kansas City, Mo.

NEW YORK.—During the past two weeks the market has not been so active, on account of the warm weather, we suppose. When cooler weather sets in for good, we expect a more active demand again. We quote fancy white, 12; No. 1, 10@11 amber, 9@10; buckwheat, 8@9; extracted Calif. white, 5@5½; Calif. light amber, 4½@5; white clover and basswood, 5; buckwheat, 4; southern, in barrels, 50c per gal. and in good demand now; beeswax firm and in good demand at 26@27.

HILDRETH BROS. & SEGELKEN,
Oct. 20. 120-122 W. Broadway, New York.

CLEVELAND.—The demand for honey is increasing, and believe will continue as the weather gets colder. We would advise shipping white honey, but dark is not moving sufficiently to encourage shipments. We quote fancy white, 12½@13; No. 1 white, 11@12; fancy amber, 9@10; No. 1 amber, 8; fancy dark, 7; No. 1 dark, 6; white extracted, 6@6½; amber, 5@5½; beeswax, 28@30.

A. B. WILLIAMS & CO.,
Oct. 19. 80-82 Broadway, Cleveland, Ohio.

CHICAGO.—Fancy white comb honey, 11@12; good grades of honey, but travel-stained or irregular, 10; amber and buckwheat, 7@9; extracted white, 5@6, according to body, flavor, and package; dark and amber, 4@5; beeswax, 26@27, and sells readily.

R. A. BURNETT & CO.,
Oct. 19. 163 South Water St., Chicago, Ill.

DENVER.—It is a hard matter for us to quote our honey market. Prices are still very low, the trade being supplied with honey from the farmers. We can quote comb honey at 10; No. 1 white extracted at 5. There is little or no demand for second grade, the best grade being so low.

R. K. & J. C. FRISBEE,
Oct. 22. Lock box 1011, Denver, Col.

BOSTON.—We quote you our honey market as follows: Fancy white, 13; No. 1 white, 11@12; fancy amber, 10; white extracted, 6@7; amber, 5@5½; beeswax, 26.

BLAKE, SCOTT & LEE.
Oct. 22. Boston, Mass.

SPRINGFIELD. — Fancy white clover, 12c; choice white clover, 10; no buckwheat in.

PERKINS & HATCH,
Oct. 7. Springfield, Mass.

FOR SALE. — 25 bbls. extracted pure white-clover honey, very light in color, and of finest quality, at prices as cheap as the cheapest, quality of goods considered. Can put it up in any style of package. Write for price, stating quantity desired.

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—Alfalfa honey, light amber, in carload lots. 3¼ cts. per lb.; sample, 10 cts.

JOHN NIPPERT, Box 1051, Phœnix, Arizona.

FOR SALE.—Buckwheat extracted in 50 and 210 lb. packages f. o. b. for 4¼c a lb.

W. LAMAR COGGSHALL, West Groton, N. Y.

WANTED.—Shipments of comb and extracted honey. Can dispose of several hundred pounds of first and second grades. Can give good reference. Write me what you have and the price asked before making shipment. D. N. RITCHEY, Black Lick, Ohio.

FOR SALE.—Tons of honey, comb, at 7 to 12c per lb. Inclose stamps for samples of extracted at 4 to 6c, in 160-lb. kegs, f. o. b. N. L. STEVENS, Venice, N. Y.

FOR SALE.—Pure honey.—Clover, extracted, 6½ cts. per lb.

I. J. STRINGHAM, 105 Park Place, N. Y. City.

FOR SALE.—Good extracted white-clover honey and heartsease and Spanish needle. Either, price 5c per lb., 60-lb. cans, 2 in a case. Send stamps for samples.

JNO. A. THORNTON, Lima, Ills.

Clover Seed Wanted.

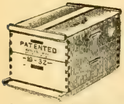
Parties in the West having alsike, red, or white-clover seed to sell may please make offers. We wish a few more choice lots of each. Address

Jos. Nysewander, Des Moines, Iowa.

The Review at Reduced Rates.

The **Bee-keepers' Review** is $1.00 a year, but, for the sake of getting it into new hands, and being able to begin the year with a large list, I will, until Jan. 1st, send free to each *new* subscriber, a copy of "Advanced Bee Culture," a 50-cent book of nearly 100 pages, that gives briefly but clearly the best methods of management from the time the bees are put into the cellar in the fall until they are again ready for winter—32 chapters in all. Those who prefer can have, instead of the book, 12 back numbers of the **Review**, the selection to be mine, but no two numbers alike. All who send $1.00 now will receive the last four issues of this year free, and the **Review** will be sent until the end of 1898. If not acquainted with the **Review**, send 10 cents for three late but different issues.

W. Z. HUTCHINSON, Flint, Mich.



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Given as **BOUNTIES** to purchasers of the improved Danz. Hives and Sections. For particulars see p. 64, of my book, "**Facts about Bees.**" Sent **Free** for 2-cent stamp. Address

F. DANZENBAKER, Washington, D. C.

The A. I. Root Co.'s Goods At Their Prices.

Including their discounts for goods wanted for use another season. It will pay you to send me list of goods wanted.

Cash for beeswax. **M. H. HUNT, Bell Branch, Mich.**

Philadelphia Office of

THE A. I. ROOT CO.,

10 Vine St., Philadelphia, Penn.

Now is the time to order

Shipping-cases, Winter Cases, Chaff Division-boards, etc., etc.

Order from catalog; prices are same as from factory.

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Root's popular Non-drip Shipping-cases at factory prices at DES MOINES, IOWA. Immense stock. All orders for cases or other goods shipped by return freight. Address

JOS. NYSEWANDER, Des Moines, Iowa.

PRICES OF

Bingham Perfect Bee-smokers and Honey-knives.

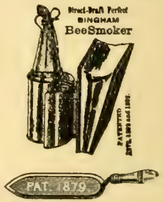
Smoke Engine (largest smoker made.)	4-inch	stove.	Doz. $13.00;	each, by mail, $1.50
Doctor	3½-in.	"	" 9.00;	" 1.10
Conqueror	3-in.	"	" 6.50;	" 1.00
Large	2½-in.	"	" 5.00;	" .90
Plain	2-in.	"	" 4.75;	" .70
Little Wonder (wt. 10 oz.)	2-in.	"	" 4.50;	" .60
Honey-knife			" 6.00;	" .80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

Weekly Bee Journal One Year for 25c.

To every *new* subscriber who sends us $1.50 before Jan. 1, 1898, we will mail a copy of Prof. Cook's 460-page cloth-bound book, "BEE-KEEPERS' GUIDE" (price $1.25), and the **Weekly American Bee Journal** for one year. That makes the **Journal** only 25 cents—a trifle less than half a cent per number. Or, if any one now getting the **Bee Journal**, and whose subscription is paid to Jan. 1, 1898, will send us $1.50, with a new name, we will mail the above book to the sender, and the **Bee Journal** for a year to the new name and address. We need hardly tell you what the **American Bee Journal** is; but if you are not acquainted with it, *write us for a free sample copy.*

Address

GEO. W. YORK & CO., = 118 Michigan St., Chicago, Ill.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO.

VOL. XXV. NOV. 1, 1897. NO. 21.

STRAY STRAWS
FROM DR. C. C. MILLER.

THIS YEAR 17,728 1⅞ sections averaged 14.41 oz. each, against an average last year of 15.088 oz. [Can you give any reason, doctor, why there should be a whole half-ounce difference between this and last year?—ED.]

DOOLITTLE SAYS, page 737, that with drawn foundation for bottom starters only two rows of cells are needed. I wish he'd tell us what he has tried "along this line." I've found more trouble about having very narrow starters of foundation gnawed down, and feared it would be the same way with drawn foundation.

HONEY-BOARDS, that so many of us have been replacing with thick top-bars, have a good word in *A. B. J.* from F. L. Thompson. He thinks sections are whiter over the honey-boards. With very black brood-combs a greater distance helps about keeping sections white; but does the gain in whiteness pay for the extra trouble, time, and expense?

THE EDITOR of *Review* expects to be at the Northwestern convention at Chicago, Nov. 10, 11. How about the editor of GLEANINGS? Don't think of my ever speaking to you again if you don't come! [If I can possibly go I will. But some unforeseen circumstance will very possibly prevent my coming at just the date on which the convention is held.—ED.]

SOMNAMBULIST, who dreams out such wide-awake ideas in *Progressive Bee-keeper*, wants to know if I didn't learn the value of sleep at Buffalo, and says: "The 'stay-at-homes' have at least a crumb of comfort in the knowledge that we didn't have to sleep on a cot, with old shawls for a mattress." Look here, Sommy, those cots had first-class woven-wire mattresses, and I slept just as well as if on a gilded couch until Leland, hopeful scion of the house of Root, came hammering me to wake me up.

PROF. COOK believes in bee-keeping for others than specialists, and says I accuse him of changing his mind in that regard. I kind o' think he'll change his mind again if he'll look up what I said. The only place I find where I said any thing about it is on p. 585, where I said, "Prof. Cook favors a return to the old plan of having a few bees on every farm, rather than large apiaries in the hands of specialists." That doesn't mean that you've changed your mind, professor, but that you want others to change their practice.

ELIAS FOX is entirely right, page 739, that locality does not rigidly and entirely control taste. While the general rule holds that people in general prefer the honey of their own locality, plenty of exceptions are to be found. Buckwheat honey is hardly known here, and yet some of my friends much prefer it to the best white clover. It's not a matter of cultivation; they seem to be born with a buckwheat taste. He is also right that one colony will propolize three times as much as another in the same apiary.

T. GREINFR, the well-known agricultural writer, although not a bee-keeper, was present at the Buffalo convention, unfortunately at a session when there was what he calls a disgraceful squabble, and in *Farm and Fireside* he advises as an outsider that Mr. Benton, who is a meritorious but impulsive bee-man, should gracefully make amends for offensive personal remarks, and abstain from referring to the services he might render, or refuse to render, in his official capacity to the society, and then be reinstated to full membership. Not bad advice.

THE VARIATION in the weight of finished sections this year was very great. The lightest case of 12 sections was 8½ lbs., and the heaviest case 12¾ lbs. Of course, the lightest section of the lightest case and the heaviest section of the heaviest case were still farther apart. It hardly seems right to sell such sections by the piece. [Say, doctor, you want me to knock that chip (honey by the piece) off your shoulder. I just won't do it, but next time I go out among bee-keepers I will stick you on the rear end of my bicycle, if you don't get too fat, and let you see that selling by the piece, in some localities at least, is the simplest and easiest way, and in accordance with the Golden Rule.—ED.]

I CAN'T TELL whether you're in fun or earnest, Mr. Editor, p. 730, so I don't know whether to get mad or not when you say you'll make a glossometer to measure the tongues of

Doolittle's bees *after* he stretches 'em. Why, bless you, he must have the glossometer to select the ones to breed from so as to stretch the tongues of the next generation. Say, what can you furnish a good glossometer for? [I am sorry, but I really can not tell whether I was in fun or in earnest on page 730. About that glossometer—well, I do not know about what it would cost—don't care much; but we have one in the garret somewhere in a cubby-hole, or on a shelf, that Doolittle can have if he will simply ask for it. It was made by J. H. Martin, and is illustrated on page 220 of GLEANINGS for 1882.—ED.]

W. P. FAYLOR lets his customers sample comb honey and extracted side by side, calling attention to the greater thickness of the extracted article, and, as a result, sells ten pounds of extracted to one of comb. But he doesn't give the relative prices.—*Am. Bee J'l.* [Mr. Faylor is working on the right plan. The majority of bee-keepers, I think, would prefer, for their own table, extracted honey, provided it is properly ripened; and I believe the majority of consumers, if they could be sure of the purity of the honey, would prefer the extracted. While a great many, it is true, prefer comb honey, the element of cheapness in favor of the extracted would go a long way to show that Faylor's policy is a good one.—ED.]

THIS YEAR, from 239 colonies, spring count, I got 17,150 lbs. honey, all comb but 300 lbs. That is the biggest yield I ever got, but not the biggest yield per colony. [Doctor, that is grand; and, if I mistake not, the labor of securing this crop was all performed by yourself and women-folks. It would be interesting to know approximately how many days it took you and your family to secure that crop. What I mean is, how many days it took you, counting the time of preparing sections, hauling bees, putting on the sections, putting into and taking out of the cellar—in fact, every thing connected with the bee-work. With another year or two like this you will have more than made up for the poor seasons you have had, and perhaps you have already. There is nothing like sticking and hanging to a business, even if it does not pay very well some years.—ED.]

SOMETHING LIKE A BOOM seems to be started in *American Bee Journal* for figwort, or Simpson honey-plant. That means some people are going to be disappointed. Geo. W. Williams says an acre of figwort is worth ten of sweet clover, and he considers figwort the only plant worth cultivating for honey alone. While that may be true for *him*, it is also true that, of the many who have tried it, perhaps no one else would coincide with him. [Our own experience, so far as I can remember, would lead me to believe that G. W. Williams' estimate of figwort as against sweet clover would not be far from right. I feel quite sure that a plant of figwort, taking about the same amount of ground as an equally vigorous plant of sweet clover, would yield ten times as much honey. Many and many a time I have watched the bees on our figworts. I have seen single bees take from a single cup or floweret of this plant about all the nectar it could carry at one load. While the drop is not quite so big as one from the spider-plant, there are many more of them.—ED.]

"BEES GATHER WAX in dull seasons," says the editor, p. 738. I think I have had some evidence that not a particle of such wax is ever used in comb-building, but only as a substitute for or in combination with propolis. [I think I have some evidence that a good many particles of such wax at such seasons of the year are used in comb-building. For instance, let me refer you to Figs. 5 and 6, p. 640, Sept. 1. And don't you believe that the bees almost invariably build combs heavier—that is, with thicker walls and thicker bases—in dull seasons, or when the honey-flow is very moderate, than they do at other times when honey is coming in at a good rate? But I suspect you are right, nevertheless—in fact, I know you are—in thinking that bees use a good deal of wax that they gather from old combs left exposed, as a sort of filler to go along with propolis.—ED.]

EDITOR YORK is a great believer in sweet clover. He pummels Prof. Pammel for saying it's a weed. Better arbitrate the matter. A valuable plant in one place may be a weed in another. One of the worst weeds I ever had to fight in a rose-bed was white clover. [I can not exactly see how something could be a bad weed in one place and a valuable plant in another—at least, not how sweet clover could be a noxious weed in *any* locality. Experience everywhere, so far as I know, shows it is very easily kept down, and that it never bothers on cultivated land. The mere fact that it grows profusely along all roadsides, where it is rarely if ever molested, gives a careless observer the impression that it would be a serious enemy to the farmer if it got started on his land. But every good thing has to have its opposers until it can have time to win its way and show that it is not as bad as its enemies think it is.—ED.]

PARAFFINE PAPER over sections, F. L. Thompson says in *A. B. J.*, is too fussy; and after the early part of the season the bees daub propolis between sections and paper. My own experience says that entirely too much has been claimed for paraffine. My bees deliberately plaster glue right on the paraffine. [It was I who, about a year ago, spoke favorably of paraffine paper; but at the time, I stated that Mr. Danzenbaker and Hon. Geo. E. Hilton had obtained good results with it, but added that we had not tried it. I am sorry to have to acknowledge, however, that our own experience on a limited scale has not been entirely favorable—rather otherwise if any thing. Mr. Danzenbaker, however, has especially emphasized the fact that bees will invariably gnaw through the paraffine paper unless it is cushioned thickly on top—that is, between the paraffine paper and the cover—with folds of newspaper, quilts, or any thing that will press the paraffine paper tightly against the sections. But we did this, and the bees gnawed into it—or, rather, we used a super that Mr. Danzenbaker had prepared as being just right, and the result was as stated. I should like to know whether the doctor, or friend Thompson either, cushioned the paraffine paper down. In the mean time perhaps friend Danzenbaker would like to say a word.—ED.]

PEDDLING MADE EASY.

A Few Capital Suggestions; Giving Away Samples and Taking Orders Afterward; the Value of the Honey-Leaflets.

BY DAN WHITE.

I told you in my last article that I had about 7000 lbs. of extracted honey, and expected to sell every pound of it near home, and promised to report later on how I got along, so I will tell you about my experience in new territory.

You see I must reach out further than ever before, so I decided to try a place twenty miles away—a place of about five thousand people; so one morning I packed my grip and took two 12-pound cans of honey and started out. About all I had in my grip was a good supply of those leaflets published by The A. I. Root Co.; then 50 postal cards addressed to myself.

I got into the town just before dinner time; and after eating a good meal at a boarding-house I filled my pockets with leaflets and took one honey-can and commenced business. I started down a street and did not miss calling at every house. After ringing the bell, or rapping, a lady would open the door and look at me with more or less suspicion. I would say, "I made the call to ask you if your family were fond of honey."

They generally answered yes, but believed they would not buy any.

"Well," I would answer, "but I am not selling honey to-day. I am giving it away, and should be glad to give you some in a sauce-dish."

Some would look astonished, others would smile, and say, "That's funny," but in *every* instance I was invited in. I would pour out the honey, then hand out a leaflet, telling them to read every word of it. "You will find it very interesting; it will tell you all about honey—how and why we extract it, etc. Then here is a postal addressed to me; and should you decide to want a 12-pound can, put your name, street, and number, on the card; drop it in the office; and when I deliver in about ten days you will get a can of honey."

Well there were enough cards put in the mail within five days to take thirty cans of honey. I promptly made the delivery on time, taking along twenty extra cans that sold about as fast as I could hand them out; and since then I have received orders for 50 more cans from the same town. I tell you, it has got all over town that a honey-man had been there selling *real* honey, 12 pounds for one dollar. I am certain this one place will take over 2000 pounds, all in one-gallon cans. Now, then, 18 pounds of honey given away from house to house; 50 postal cards, 200 leaflets left at houses and handed to people on the street, and one day walking over a very small portion of the town, has found a place for at *least* 2000 pounds of honey. Then think what I can do next season should I secure a good crop. All I shall have to do is to take a big load and go up there and hand it out. By the way, the honey sold there was thrown out of clean white combs, over every inch of whose surface the uncapping-knife had to go. It weighed strong 12 pounds to the gallon—just as good as the best comb honey, *only* it was out of the combs. Of *course* I can go back just as often as I choose; yes, and the people will all be glad to see me.

We read about the trouble in grading comb honey, and just how to get it in the market to the best advantage; but I want to ask, what would happen with comb-honey producers if the bees could only be influenced to fill the section combs one day and cap over ready for market the next day? I imagine there are some who would favor this very thing. Yes, sir; some would advertise a strain of bees that could be controlled in that direction easier than any other strain. Others would say, "Hold on! my bees must go on in the good old way, and not cap over any honey until it is ripe and wholesome to eat." We will call the latter class honest men who can build up an honest trade for their honey, and then hold it if the former class would just keep away. Now, sir, I shall call the *former* class dishonest, not only to their customers, but dishonest to themselves *especially*, if they expect to continue in the business. Then they would be dishonest because they would do a great injury to the honey market in general, and this is the very worst thing of it all. Don't forget that *very few* people get tired of good first-class honey; and, above all, remember that almost any one will tire of poor, thin, unripe honey.

One thing we must always expect; and that is, some of these fellows who have only a few colonies of bees will annoy us by extracting poor honey, and finding some one to buy it, because they call it honey, and often find customers because they make a price below any thing heard of. This class, of course, don't care, as they care nothing for a reputation. Some seasons they have a little to dispose of, and other seasons they make a failure. Thank fortune for their failures! But what can we say to bee-keepers who handle large apiaries, to convince *them* they are doing wrong? I personally know several who are scattering this unripe honey over the country. This makes me believe there are just lots of these fellows, because my acquaintance does not reach out very far over this broad land.

I am saying more than I want to about this; but I am in earnest, and wish I could influence some or all to see as I do, and then see how easy it will be to dispose of our honey.

Only last season a man called on one of my customers who annually buys from 50 to 75 pounds of me. Being out of honey he was influenced to take 50 pounds of *his* honey.

One reason he bought of him was because the price was lower than he had ever had it offered. You see, this was two or three weeks earlier than I could get any *good* honey for my customers. I found this out when I did call, and told him he had made a mistake. Now, here is the secret of all this. When I called on this family this season with some *good* honey they had plenty left over from last season's supply. What must I now do? Well, I will tell you. Start all over new; call for a dish, and give them some to renew that taste for honey. It worked just like a charm, for it was only a day or so when I got an order for 20 pounds; and later on, 40 pounds.

I could enumerate several places where this energetic hustling bee-keeper caused this same trouble. Now, is it surprising that we hear so much about poor honey markets, especially extracted honey? I don't want any one to think I am worrying about the sale of my own honey, because they will be very much mistaken. My aim is to see if I can't fix it so these fellows who want to sell and market their honey can feel as good about it as I do.

THE FALLEN BEE-TREE; THE CHILDREN THAT ATE THE HONEY.—SEE EDITORIALS.

I have said enough for one time, and will close after telling one thing more that I candidly believe to be true. Now listen. If the people in Ohio were properly supplied, or eating what honey they would eat if it were put before them in the right shape, the supply would not equal the demand, even if every State joining should depend on Ohio for a market. Use your customers right. Look up your own territory right; peddle no better than I do, and you will believe as I do.

New London, O.

[I have spoken highly of our friend Dan White before; but the more I see of him, and read what he has to say, the more I believe he is chock full of good hard common sense.

Peddling seems to be very distasteful to many; yet the most disagreeable feature of it is removed by the method proposed. To knock at the front door and try to *force* a sale is something that nine-tenths of us will not do; but to tell the lady of the house that you are not selling any thing to day, and that you would like to *give* her a sample of nice honey—why, it seems to me that would be easy. Then the idea of letting the honey-leaflet and the postal card do the talking, and take the order afterward—well, it is the best idea that has yet been proposed.

I hope every reader will take pains to read this article. Try the scheme, and then report. You may not all be as successful as was our friend Dan, with his honest-looking face and general appearance of one who earns his bread and butter and honey by the sweat of his brow. I tell you, it is worth a good deal to have an honest heart inside; for in a short time it will blazon itself in big letters all over the man. I am going to ask Dan to send us a photo of himself.—ED.]

* * *

DEVELOPING THE HOME MARKET.

Trading Honey for Ducks, Pigs, and Pups; an Interesting Experience.

BY GEO. L. VINAL.

In all the literature on bees and honey, we are urged to develop the home market. Acting on the advice, after I had traveled over my regular route this fall I went into an entirely new locality. After enjoying the scenery and the sunlight for about a five-mile drive I called at a farmhouse and inquired of the good lady if she would like some honey.

"Well, yes. I should like some, but I have no money."

Seeing some ducks, I offered to trade honey for ducks; and for a pair I gave four pint jars of honey.

Calling at another house, I sold $2.00 worth for cash; and while I was talking with the man one of the ducks gave a quack, which lead to an inquiry as to what I had. I told him I had traded honey for ducks.

"Well, now, look here; can't I trade you some hens for some honey?"

I traded for half a dozen, and made the children, I hope, happy (I was). In this way I passed the day, and on my drive home I was trying to figure out my profits.

I had disposed of two gross of pint jars, and 120 pounds of comb honey. For the pint jars I received 25 cents; also 25 cents each for the sections of comb. I had had a royal day's sport; and as I listened to the quack of the ducks and geese, the cackle of the hens, and squeal of the pigs, and looked at the large box of eggs that I had in the wagon, I thought I would have to send for some of Dr. Mason's egg-preservative.

After getting home I took account of stock. I had $54.40 cash, 108 dozen eggs, 8 ducks, 1 goose, 2 pigs, 24 hens, and 1 bullpup. (The pup is for sale.)

Charlton City, Mass.

THE TALL SECTION.

Who First Brought It Out? Patents.

BY F. G. BASS.

Mr. E. R. Root:—Why do you allow readers of GLEANINGS to be misinformed by calling a copy of a section used by Capt. J. E. Hetherington for the past twenty years the "Danzy" section? I suppose it is because you are not posted. Please allow me to inform you that the so-called "Danzy" section, 3⅞x5x1⅝, was copied from J. E. Hetherington's section in this State five years ago. I see the "Danzy section" is now changed to 4x5x1⅝. Why not change again to 4¼x5¼x1⅝, so those who wish to deceive the eye can do so by simply adding one inch to the top of old supers? If this does not satisfy you as to who is the originator of the tall section, I will go into particulars, as I am personally acquainted with the parties and facts in the case.

I notice great change in the management of GLEANINGS. Instead of fighting against patents on bee-keepers' supplies, it is controlling patents on foundation and bee-hives. I do not see why we should not patent them as well as other agricultural implements.

Front Royal, Va., Oct. 18.

[Why, my friend, *you* are not posted on what has been printed in GLEANINGS. Mr. Danzenbaker does not claim that he introduced the deep section. In fact, I think he has stated more than once that Capt. J. E. Hetherington was using sections 3⅞x5x1⅝; and I know he has said that, after he had been to Capt. Hetherington's, and seen his beautiful honey, he became convinced that the deep sections were the ones he would use.

Why do we call the section the Danzy? For the reason that it has a peculiar opening or bee-way. There is no bee-space on one side, and a bee-way on the other, and those bee-ways are decidedly different from those Capt. Hetherington uses. The latter would probably not care to father such a form of section, and we have therefore called the section the Danzy. We are very well aware that Capt. Hetherington was one of the first to use deep sections, and we are sure we have no desire to deprive that distinguished bee-keeper, whose good will we value much, of his rightful credit.

Yes, indeed, we believe that *worthy* inventions, even in apiculture, should be protected by a patent. The "boys," of whom I am one, have never experienced a change of mind in regard to the subject of patents. We stand to-day just where we always have stood; and A. I. R., while somewhat of the same opinion as before, has no desire to interfere with the changed policy regarding patents.

Later.—Since writing the above, Mr. Weed has called my attention to the fact that the "deep section is older than the hills." We have run across an old volume of Kidder, published in 1868, where the deep section is illustrated and described on p. 174. The remarkable part of these sections is that they had no bee-ways in them. They are simply boxes without top or bottom, deeper one way than another, with plain edges. A sort of cleated separator was used to regulate the bee-spaces. Even Kidder himself does not claim that this section was original with him.—ED.]

POISONOUS HONEY-PLANTS.

Scotch Heath.

BY MRS. L. E. R. LAMBRIGGER.

Replying to Dr. Miller's Stray Straw in Oct. 1st GLEANINGS, I would say there is probably no mistake about the existence of Scottish heather in New Jersey. The late Peter Henderson, himself a Scotchman, says: "*Calluna vulgaris*, the only species, is the well-known heather of Scotland, popularly known as ling, or common heath; a low-growing, much-branched little shrub, with very pretty rose-colored, purple, or white fragrant flowers produced in crowded axillary clusters, forming one-sided (mostly) spikes or racemes. This beautiful little plant has become naturalized in a few localities in America. It is reported at Tewksbury, Mass., and at Cape Elizabeth, Maine. It is also found sparingly in Nova Scotia and Newfoundland."

NATURAL ORDER, ERICACEÆ.

Turning now to Gray's Manual, page 318, I find the following:

"*Calluna vulgaris.* Low grounds, Mass., at Tewksbury, and W. Andover; Maine, at

Cape Elizabeth; also N. Scotia, C. Breton, Newfoundland, etc.; probably only introduced."

Further down same page occurs this:

"Two European heaths, *Erica cinerea*, and *E. tetralix*, have been found in small patches on Nantucket Island."

Turning again, this time to my encyclopedia, I quote:

"*Calluna vulgaris*, sometimes called the ling, is the common heath, or heather, and the most abundant species of the family in Britain. It is the plant whose flowers render the slopes of most Scottish hills pink in autumn, and the one so abundant in Epping Forest. Ornamental varieties are sometimes grown in gardens. The plant is astringent, and is employed by both fullers and dyers, and the flowers are very attractive to bees."

OHIO WOODS—CUTTING DOWN A BEE-TREE.—SEE EDITORIALS.

The genus *Erica* comprises about 400 known species, of which five are British. The first two, *E. cinerea* and *E. tetralix*, are widely diffused and abundant; the others are more local.

To summarize, and add a few words of explanation that the reader may not be confused regarding terms:

Calluna vulgaris and *Erica cinerea* are one and the same plant; viz., Scottish heather. I myself did a good deal of searching and comparing of botanical terms and definitions before I found this out. When two high authorities seem to conflict, or are most provokingly silent and obscure where they should be the very reverse, it is often difficult to get at the truth. Our only recourse is books — more books — many books — reference works; and the average home is not overstocked with these.

The Latin word *cinerea* means ashy gray, or ash-colored, and not fine-leaved, as one authority gives it. The heather belongs to the heath family; but all heaths are not heather, and this brings us right to the point under discussion; viz., poisonous honey. I do not claim to *know* whether any living plant secretes poisonous nectar. I wish I did know, as in that case I would soon end the discussion. My aim is to try to help find out. To this end, allow me to again quote Peter Henderson, the father of horticulture in America. Under the head of "Poisonous Plants" he says:

"Of the 100,000 known flowering plants, it is stated that 10,000 may be considered deleterious, all being more or less energetic in their action; and of these, probably fifty are deadly.

It is a singular but generally understood fact, that all plants having green flowers are poisonous, either in their leaves, stems, seeds, or roots."

He then adds:

"*These dangerous qualities are generally mentioned in this work*" — meaning his "Handbook of Plants." Italics mine.

Now, friends, I have studied the subject very carefully. *Azalea pontica* is the heath from which the honey was obtained that is supposed to have poisoned Xenophon's soldiers; but Mr. Henderson makes no comment on the plant, further than to state that it is a native of Turkey. In like manner he has only good words to say of the mountain laurel, *Kalmia latifolia;* but in treating of its near relative, *Kalmia angustifolia*, he tells us that it is deadly to sheep. On the other hand, my encyclopedia gives the following:

"The leaves of *Kalmia latifolia*, the laurel ivy, spoonwood, or calico-bush, are poisonous to many animals; and the flesh of pheasants which have fed on it is said to be deleterious to man. A honey-like juice exuding from the flowers brings on phrenetic excitement."

Can Prof. Cook enlighten us as to the probable truth of the last statement? For myself, I offer no settled opinion on the subject; however, I am decidedly in favor of having the matter ventilated to its fullest. In a few days I shall be in receipt of a new and up-to-date reference library. This subject will be the first looked into; and if I find any additional light, or confirmation of what we have, I promise to report.

Niobrara, Neb.

* * *

A FEW MORE FACTS CONCERNING THE RIETSCHE PRESS.

BY F. L. THOMPSON.

Mr. Root:—I will assume that both of us want to get at the exact truth concerning the Rietsche press, and so confide to your tender mercies a few more facts. My two chief points are, first, that we do not know enough of the Rietsche machine; second, that many can not afford to buy foundation, and, if possible, something ought to be done for that class.

In the August number of *La Revue Internationale* is an article on the Rietsche press from the manufacturers' point of view, by Alf. de Trey. He says the fact that Rietsche foundation is more rapidly worked by the bees than factory foundation is simply due to its greater thickness, and that he knows this by experience. He also contends that this greater thickness destroys the advantage of cheapness, making a difference in value of wax amounting to 1 franc for every 9 Dadant frames; and that the brittleness is so great, since Rietsche foundation can not be handled readily below a temperature of 19° (apparently centigrade = $61\frac{5}{9}$ F.), that a number of people he knows have bean completely discouraged by that fact. Ulrich Gubler comments on the article by asking whether exposing the sheets to the sun before using is more trouble than to write to the manufacturer, wait some time for the merchandise, and unpack it when it comes; and that thickness is far from being a fault; for if a swarm finds an extra pound of wax in its sheets, it does not have to produce it; hence, six pounds of honey is saved, as well as the time for gathering as much more. (This last argument seems to me rather singular. Under certain circumstances, and generally, I believe, bees build combs from foundation without making all possible use of the wax therein contained, or anywhere near it. Still, there may be something in it. Did not the report of the Ontario Station give an account of an experiment with black foundation, in which the completed cells showed a regular gradation of tint from the septum to the outer edges of the cells?)

From the above one might conclude that both sides agree Rietsche foundation is always thicker than factory foundation; but this conclusion would be at least dubious, for neither of them says any thing about wire, and we know that Rietsche foundation abroad is used without wire, whatever may be the reason; hence the comparison may be between unwired Rietsche foundation and wired factory foundation, which would hardly be fair.

I also ran across an old catalog of German bee-supplies, which I did not know I had. According to this, when a sheet measures 25 x 20 centimeters, 20 is the depth. I had supposed these were full-depth dimensions, which would have made the longer dimension vertical. However, the fact that it was intended to be used without wire is sufficient to account for the weight of the sample you received. The smallest press, 22 x 17 centimeters, costs, with packing, 10 marks, or $2.38; the largest, 45 x 30, $8.15. I estimate the L. size would be about $5.36. There are 10 sizes in all. A simple device does away with any necessity for trimming the sheets. The chief instructions are as follows:

"Apply to the plates with a brush a mixture of one part honey, two parts water, and three parts pure alcohol. Pour wax on the under plate, and shut quickly. Shake the surplus back into the wax vessel. Cool in water, if necessary. Open and remove the sheet. The time consumed for all this is about one minute. The amount worked by one man per hour is from one to three kilos, according to the size of the press; consequently, a press soon pays for itself. The sheets are thin or thick according to the temperature of the wax and degree of cooling, so that thin or thick sheets may be produced at pleasure. After some practice it will be easy to make a square meter of foundation with moderately high cells out of a kilo of wax, or 1¼ square meters with shallow cells. A surface of four-fifths to one square meter is just enough to be completely worked up out of the wax given."

Rietsche's advertisements now say 150 sheets an hour are made, with no brushing nor expense for lubricants; and, as you will recollect, the thinnest made is 1.35 square meters to the kilo, instead of 1.25, as above. The chief point to be noted in the foregoing is the manner of producing thin or thick sheets. Perhaps this has a bearing on your experience with the machine.

It just struck me that the largest size of press kept in stock (any size may be ordered) being 45x30 cm., hence a trifle longer one way than the L. size, which is 20x43 centimeters, there would seem to be no practical obstacles in the way of working a *double* L. size, 40x43, and cutting the sheets in two afterward. *Then* what would become of all your calculations? Whoopee!

But, really, in my case at least, I would lay very little stress one way or the other on the number worked per hour, within reasonable limits. It is that 41—25 = 16 cents per *pound* used that I want to get out of paying.

Montrose, Colo., Sept. 20.

[Perhaps our readers are already getting tired of this discussion; but we hope to have the truth come out, let it strike where it may.

Some of the things that friend Thompson has given favor my side, and some favor his own. So far as these last relate I will let them stand on their own merits. I simply desire to call attention to the fact that there seems to be a disagreement among those interested in the sale of the Rietsche press. The manufacturers themselves give rather indefinite figures as to how much per hour their press will make. For instance, in the article above they say that 150 sheets per hour are made; but there is no reference as to the *size* of the sheets. It is hardly fair to assume that a large sheet could be made as rapidly as a small one, as intimated in friend Thompson's next to the last paragraph; but I have found something definite myself from a dealer who sells Rietsche foundation-presses in Australia. His advertisement appears in the *Australian Bee Bulletin*. In referring to the Rietsche press he says:

"Foundation may be made at a very slight cost of labor; capacity, 3 to 4 lbs. per hour."

This cuts the estimates down that friend T. has been making, just about a half; and I am more inclined to believe that this is actually the capacity of the machine, because these figures are just about what we were able to secure with the press we have. This advertisement appears in the August 24th issue, and doubtless referred to late machines.

If three or four pounds of foundation per hour is all that can be made from an L. sized Rietsche press, I can not by any combination of figures, allowing the operator $2.00 a day for his time, see how any great saving could be effected over factory-made foundation. At three or four pounds per hour we can hardly figure on more than 20 or 25 lbs. as a day's work. Then the brittleness of the article after it was made would be somewhat against it.

Mr. Thompson is laboring under the disadvantage of having never used one of the Rietsche presses. If he will pay the cost of a late machine we will pay the cost of transportation; and I would suggest that further argument be deferred until such a time as he shall have actually tested the machine so that he will not have to depend upon what some one else says. My arguments all along have been based on our own experience with a Rietsche press. When we bought it our intention was to make some arrangement to put it on the market if it should prove to be a good thing.

If it shall yet turn out to be a great help to a certain class who can not afford to pay high freight rates, let alone the cost of ordinary foundation, we as manufacturers of supplies would be very shortsighted if we did not supply such customers with these hand machines. I am open to conviction; and I believe friend Thompson is also, and that he will test the machine fairly, because his article above shows a spirit of fairness and a desire to get at the truth.—Ed.]

NIVER AND HIMSELF.—SEE EDITORIALS.

* * *

VALUE OF CLEATED SEPARATORS.

Comb Honey "as Straight and Smooth on its Surface as a Planed Block of Wood."

BY JULIUS TOMLINSON.

I have just been reading your Oct. 15th issue, and was particularly interested in the new separator you wrote so much about on page 741. According to my present light I think them a good thing, for I have tried them this season. I got my idea from R. C. Aikin (in GLEANINGS for April 15, '97, page 275), but I rejected his idea of supporting sections by little nails driven into the separators. Instead I floored my section-case with thin strips, scored out on the edges, for bee-spaces. The separators are ⅛ in. thick, and the strips across the same are ⅛ also, on each side. This keeps the sections just ⅜ in. apart. The bottom and top of sections are 1¼ in. wide; uprights of sections 1½ in. wide, which gives a bee-space of ¼ inch between top and bottom of sections, and the honey in the section is just 1¼ in. thick, and exactly even with top and bottom pieces, and as straight and smooth on its surface as a planed block of wood. When crated, the combs are ¼ in. apart, and need no separators. I never had honey in nicer shape than in those sections. The floor in the case prevents the bees from coming in contact with the sections, and I think that, in another season, I shall cover the sections on the top also with thin bottom floor strips.

Instead of glue for fastening on strips I use small clinch-nails—such as are used for making peach-baskets — and with a suitable form it can be done quite rapidly by any boy or girl. Of course, it is some work to fix up section-cases this way, but not more than wide frames, and it is no trouble at all to take the sections from the cases. I have a way of my own for pressing the sections together in the cases, both endwise and sidewise. My section-case is a plain box halved together at the corners, and nailed both ways.

Allegan, Mich., Oct. 23.

[I had forgotten the fact that so good an authority as R. C. Aikin uses and recommends cleated separators when I wrote the article in our previous issue, page 741. As time goes on, I have no doubt we shall find that a larger number of bee-keepers than we had any idea of saw the advantage of cleated separators and made use of them.

I notice that you emphasize the fact that this style of separator gives you comb honey "as straight and smooth on its surface as a planed block of wood." Why, it seems to me that any one who would think of using the old style of separator in preference to the new one would be simply shutting his eyes and throwing away his dollars—none so blind as they who will not see. I do not think or guess or theorize. The proof of the pudding is in the eating. The honey that has been produced by cleated separators speaks for itself. The sections are not only better filled out, but plumper, and, as I stated in our last issue, would grade at least one notch higher in the open market.

Well, it seems here is another man who also caught on to the advantage of this style of section, and we will let him speak for himself; and in the mean time we should like to hear from others who have been using the same or a similar device. Let us hear all the bad things about them as well as the good. —ED.]

HOW AND WHY THE NO-BEE-SPACE SECTION OF HONEY BRINGS A HIGHER PRICE.

Mr. Root:—Referring to editorial column, page 744, you speak of non-bee-space sections. I want to say that I heartily agree with you in all you say about the pleasing effect they *present* when looking at the face of the section. No one looks at section honey edgewise when buying, unless to see whether it is cleaned of propolis; consequently the section that is filled out to the edge, and evenly capped, no outside cells uncapped, which is so common with the bee-spaced section, is the kind of section honey that will sell ninety-nine times out of a hundred first—*every* time when sold by the section, even if the bee-spaced section did weigh a little heavier.

During the honey-flow this season my circumstances were of such a nature that I could not purchase such goods as were needed (caused by misfortunes in the past two years, over which I had no control); consequently, in order to procure the honey my bees would gather I was forced to plan some arrangement for surplus. After I had used all sections until others could be had, so I had a lot of brood-frames in the flat, they were put together and spaced with horizontal and perpendicular thin strips. Starters were put in and given to the bees, and were spaced to about $\frac{3}{16}$ inch; and, oh my! that was the loveliest sight of honey, when taken off, I ever saw. I do not believe there were a dozen uncapped cells in the entire lot. Every section was built out as even as a planed board; in fact, it was a solid block of honey.

A few days after this honey was taken off, a gentleman called for some honey; and while I was about to wrap up seven of my nicest filled sections, the gentleman spied those large frames, and was so fascinated by their appearance he exclaimed, "Say, Mr. G., is this honey for sale?"

"Yes, sir."

"How much have you like this?" pointing to a frame hanging up in my honey-room, "and the price?"

I said, "I think about 40 lbs., and 15 cts. per pound."

"Well, you needn't tie up those boxes. I'll take the 40 lbs."

Now, why did this gentleman buy that honey in preference to a dollar's worth of as nice bee-space-section honey as it's possible to produce by any apiarist? It was all white-clover honey. It was the pleasing appearance it presented by being built out even with the edge of the frame, and no uncapped cells, which always make a section look as if it contains more beeswax than honey.

Here is another observation proof in my method of manipulating bees (swarms), caging the queen, placing her in super, and hiving the swarm back, as stated in former articles. In preparing the cages I take a number of the one-piece sections, place them between two boards, and place them in the bench-vise; then with the plane I dress off the projecting edges. They are then put together, then each side is covered with wire cloth. Not having enough sections to fill out a super, it occurred to me that I could fill out with the so prepared queen-cages, and I took off the wire cloth, and inserted eight of those dressed sections, slipping little strips between rows to give a bee-space, which answered the same as the slatted separator, never thinking what the result would be, more than to save the honey the bees would gather; but when I took that crate off I was so pleased with those eight sections that I said to myself, "Next year I'll fix '*em*."

Those eight sections were all filled out even with the edge of the section, or so nearly so that two could be placed together and the two face surfaces would nearly touch together; and as I keep nice glassed cases of honey in our stores, those sections were placed in those cases with the other bee-spaced sections; but the eight non-bee-spaced were the first sold, and because they looked as though they contained more honey for 15 cts. than the others, and I am not so sure but they did; however, I did not think at the time to test them by weight.

So, Mr. Editor, should I live to manipulate bees through the season of 1898 I shall test this matter pretty thoroughly; also the drawn-foundation comb, of which we have read so much. J. A. GOLDEN.

Reinersville, O., Oct. 23.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE. BORODINO. N.Y.

WINTER-PASSAGES IN COMBS NOT NECESSARY.

Question.—I see in one of my papers that one writer claims that old age can be set down as the reason for bees dying in winter without apparent cause, and asserts that the cause of the loss of many colonies lies in the fact that the same was composed mostly of old bees at the approach of cold weather. This may be the cause of some of the loss; but I think the loss is more often caused (where bees are wintered on their summer stands in the open air) from chill, or the impression from cold of those occupying outer ranges of comb, during sudden changes from warm to very cold weather. Especially is the loss very considerable from this source where the comb-passages are deficient, as they generally are where large frames are used; as in such case the detached clusters are unable to readily join the main cluster, and are not in sufficient numbers to maintain the requisite degree of heat, and are thus lost. Considering these facts, do you not think it well to make winter-passages through the combs, near the center, for the bees to pass through?

Answer.—The above brings up a subject which was discussed at length several years ago, when there was a "craze," as it were, for "winter-passageways" through the combs. The argument then brought forth was, that on the first cold spell the cluster of bees is obliged to contract in order to maintain the necessary degree of heat required; and in doing so those occupying the outer ranges of comb, being in a sluggish state from the influence of the cold, failed to pass up and around the combs quick enough to keep up with the receding cluster, hence were left to perish with the cold. To obviate this loss, winter-passageways through the center of the combs were recommended, made by boring holes through them, or by having a curled shaving, which was painted on the inside, suspended in each frame when the swarm was hived, so that the bees would of themselves leave such passageways when constructing their combs. By this means the outer bees had direct communication with the cluster, so that, even though partly stiffened with the cold, they could easily recede so as to keep up with the main cluster. The painting of the inside of the shaving was said to keep the bees from building comb in these holes; but, notwithstanding, the bees would, as a rule, fill up these winter-passageways, each summer, which gave a good yield of honey, so it was found quite a job to see that they were open each fall. This led some one to propose boring a hole in the side of the hive, at the proper place, so that with a square stick, pointed at one end, which was to be slowly "wormed" (so as not to kill the bees) through to the opposite side of the hive, thus making a passage through all of the combs at one operation, thus making quite a saving as to labor. Many of my older hives have such a hole in the sides, with a button to turn over it when not in use; and where such passageways are desired, probably there is no better way of securing them than this last.

However, it was soon found that the bees would remain and die within half an inch of these holes in the combs; and as said holes were quite a damage to the combs (the bees filling them with comb having the drone size of cells the next season, or, if left open, it allowed a place for the bees to stay in when they were being brushed off for extracting or any other purpose), the making of such passageways has been generally given up, I believe. Some who still cling to the idea use what is known as the "Hill device" above the combs, as a sort of compromise; but after careful experiments with all of the above the writer has discarded the whole of them, believing there is not enough gained to compensate for the trouble. That the bees would die within an inch or less of such passageways, as spoken of above, and that such death of bees rarely occurred except during the first heavy freeze each fall, led me to investigate the matter closely, said investigation proving to my mind that these bees died from lack of vitality (or old áge), rather than from the cause assigned. Usually we have much cool cloudy weather from two to four weeks before the first severe cold, so that old bees do not leave the hive to any extent to die, as they do all through the summer months, so that the number of dead bees dying from this cause would be considerable, providing none were chilled. But instead of dying at once, at this time of the year, these old bees seem to linger along for a chance to get out of the hive to die, the same as they do at all times when they can fly freely, and so gather in little clusters of three, six, twelve, or more, in a place where they remain in a half-dormant state till caught by extreme cold, or a chance is offered for a flight.

I find, by referring to an old diary that was in writing at the time I was conducting experiments along this line, that one year, when a fine warm day occurred just before the first very cold weather, on which day the bees all flew finely, owing to their being confined to their hives from cool rainy weather for two weeks preceding, I found multitudes of sluggish bees clinging to the sides of the hives, on the grass, fences, etc., near the evening of that day. On touching them they had life enough to thrust out the sting, but none would fly or even crawl; and when the next morning came with a temperature of only 15 degrees above zero these bees were frozen stiff, remaining where they were the night before. This was a surprise to me, and I was led to believe, which belief still clings to me, that I had discovered the real cause of the trouble. A look into the hive after this cold wave had passed brought to light no dead bees on the combs as are usually found where the bees have no chance to fly for some time before the first extreme cold, and very few were found at any time during the winter, all getting clustered compactly for winter without passageways.

Then, again, I have often noticed that these little knots of bees were found, dead or otherwise, only with the first contraction of the cluster, as afterward no gain in dead bees between the outer ranges of combs was noticed with each expansion and contraction. Therefore I do not pay any attention to passageways for bees during winter at the present time.

Heads of Grain, from Different Fields.

DEEP-CELL FOUNDATION TESTED BY EUGENE SECOR.

Mr. Root:—Last spring you sent me for trial six pieces of deep-cell foundation. They were about 2 inches wide, and long enough to reach from side to side of a 4¼x4¼ section. I put these six pieces into two-inch-wide sections, and the sections in the center rows of a super covering an eight-frame hive. The remainder of the sections in the super had Vandeusen flat-bottom-foundation starters, about three-fourths full.

The super was put on a strong colony July 7, with the intention of catching the basswood flow, which was soon to open. But we got no honey from that source. The only resources left were the last days of white clover and the fall flow. The sections were entered by the bees very slowly. I think the deep cells were first occupied, but the comb-building progressed simultaneously on the flat-bottom foundation just as fast as in the sections which contained the new-process foundation. When taken off, all the sections containing the deep-cell or drawn foundation were well filled, and all the other sections *on one side of the super*. On the other side, right up to the deep-cell sections, nothing whatever had been done.

Now for the mouth test. As I said, the pieces used were not to exceed 2 inches wide. The rest of the comb in the sections was built by the bees. I would cut a small mouthful from the top, and then one from the bottom of the section, and eat them alternately. If I had been blindfolded I could not have told one from the other. Others tested it in the same manner and with the same result. The lower part of the section was built with drone comb.

I find that the season and the abundance (or otherwise) of the flow of nectar has more to do with the thickness of the combs — in other words its "gobbyness"—than the foundation, keeping in mind that only the thinnest foundation is fit for sections. The "waxyest" honey I ever ate was all the natural product of bees. I believe every observing bee-keeper has noticed the same thing.

Now, what of the future of this new-process foundation? I believe it is going to be a valuable thing for "bait" sections at least. What is puzzling me most is how to fasten the stuff in sections without melted wax. I don't remember to have seen your plan of putting it in described. EUGENE SECOR.

Forest City, Ia.

THE NEW DRAWN FOUNDATION A DECIDED SUCCESS.

In the Oct. 1st issue of GLEANINGS you ask for testimonials as to the merits and demerits of the new drawn foundation. I must say that I used about 20 pieces of this foundation, using 2 pieces in most of the sections, as I believe in full sheets. I consider even this to be too small a scale to give it a thorough test. But, candidly, I do not hesitate to say that I think the new drawn process a big step in advance — so much so that I believe the comb-honey man can give an advance of 25 cts. per lb. in preference to buying the old style at 50 cts. I also desire to say that, in soliciting testimony in regard to the new drawn process, there has been an oversight in said testimony; viz., how much more is it worth per pound than what we have been using? Some who oppose it have said, "Too much of a gob of wax." Let us see just a minute. Foundation that runs 10 ft. per lb. is what I have been using. I put this into the supers, and the bees proceed to draw it out. When it is drawn out to the same width as the new-process foundation, I find that both kinds are identically the same, and the same number of feet to the pound; consequently the same amount of "gob" in each.

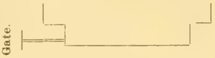
I run for comb honey, and my neighbor runs for extracted. Why is it that he gets 2 lbs. to my one? Will some one who opposes the new drawn foundation answer this question? F. D. LOWE.

Rosedale, Cal., Oct. 8, 1897.

[While we are glad to get such reports, we do not want those who have had adverse experience to keep still. We have just as much room for one kind of testimony as the other. If *flat-base* deep-cell foundation shall prove to be a good thing in the majority of instances, what shall we say of the same product with *natural* base? This is what we expect to make; and, if we do not miss our calculations, we shall have it next season.—ED.]

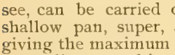
A CHEAP HOME-MADE UNCAPPING-DEVICE.

Let me suggest a cappings-drainer that is inexpensive, and a complete success as we use it. I will commence to describe it from the bottom.



First a tin pan just large enough for an ordinary super to rest in. The one we use is 4 inches deep, and provided with a screw-cap honey-gate. Set the super on it. Next take a tin-bound sheet of wire-strainer cloth, just large enough to drop inside the super and rest on the tin strips provided for the section-holders to rest on. Then we want a frame to rest on the top of the super (as on the Dadant can), to rest the comb on while uncapping.

Now we will uncap till our strainer cloth is covered to a sufficient depth, when we will lay on a shallow tin pan—say ½ inch deep on one end and the sides, and at the other end enough deeper to give the pan quite a pitch (the projection, you will notice, will hang in the rabbets at the end of the super). The pan has a ¾-inch hole punched in it at "A."



Next put on another super with wire strainer, and continue your work, when the honey will drip through on the shallow pan, and, passing down to its lower end, will run through the hole "A" into the pan below. This, you see, can be carried on indefinitely, adding a shallow pan, super, and strainer, as needed, giving the maximum amount of strainer room at small cost, and in very compact form. The holes "A," you see, will come over each other if the precaution is taken to hang all the shallow pans the same way.

We were unable to get wire strainer on short notice, and for a makeshift made sieves of the ordinary window-curtain strips that would just fit inside the super, then stuck 4-ounce tacks ½ inch apart all round the lower edges, wound twine around them, joining a warp the longer way, next wove it across by the aid of a wire hook; drove the tacks home on the string, and then covered the tack-heads with a ¼-inch-stick strip. This makes a good substitute for the wire strainers, but is quite a job, and I imagine you could furnish the tin and wire strainers just as cheaply as these substitutes can be made.

I don't know that I have made the idea clear. If you catch it I think you will see the utility of it, as it gives so much strainer surface with so little exposure of the cappings to flies or dust, and at so little expense to any one who already has the supers.

Emmetsburg, Ia. J. C. BENNETT.

[I can't see the need of so many extra strainers and pans. One pan and strainer ought to be enough. Sufficient room for the cappings could be obtained by putting on extra supers.—ED.]

THOSE NAUGHTY FARMER BEE-KEEPERS; AN EXPERIENCE DIFFERENT FROM ABBOTT'S.

Dr. Miller, in Straws for Oct. 1, asks all those who have had to sell their comb honey at low prices on account of farmers and small bee-keepers bringing in their sickly-looking honey, to hold up their hand. Here is mine. Mr. Abbott's friends are not the kind I am looking for. Those farmer bee-keepers who put on sections one year and take them off the year following, and then take them to town and sell for what they can get, are surely enemies to the bee-keeper who tries to produce only a first-class article. It not only lowers prices for the good honey, but I have found some stores that will not handle honey, because they had got some of this leaky honey, and it ran all over their showcases, and smeared every thing up, and only a bee-keeper of experience knows it is not very easy to clean it up; and this is enough to put almost any store against handling honey at a small profit. I have sold all my honey at 10 cts., nice comb honey at that; but this is better than shipping to commission houses and receiving 7 or 8 cts. per lb. for it. My crop was about 2000 lbs. this year—about half clover and heartsease. Sweet clover did not yield much this year, as it was pastured too closely. G. E. NELSON.

Bishop Hill, Ill., Oct. 15.

OVERSTOCKING IN YORK STATE.

Mr. E. R. Root:—In your editorial on page 672, under the heading "What I saw in York State," you give us to understand that the portion of the State visited by you seemed to be overstocked with bees, which is undoubtedly true; but in this part of the State just the opposite is true. To illustrate: In driving recently a distance of twenty miles from my place, and the same back, by another road, I think I did not pass more than a dozen hives, and they were box hives. The trip was near the St. Lawrence River and Thousand Isles, where honey has retailed at from 12½ to 18 cts. per 1-lb. section. I have wholesaled extracted honey in this market this season at not less than 40 cts. per quart, including can. I bought the honey of The A. I. Root Co. You may conclude that bees do not do well here; but a woman living near tells me that she had one colony increase to nine, in a single season, by natural swarming.

I keep only a few bees, but have taken 128 4¼ x 4¼ sections from a single hive in a season, and allowed them to cast one swarm. In the same year, 1893, 10 colonies increased to 28, and gave 983 sections of surplus. This year five colonies have increased to 13, and given about 400 sections. I believe there are excellent localities here for the location of apiaries, and will answer inquiries from any one interested who will inclose a stamp.

J. F. PETRIE.

Plessis, Jeff. Co., N. Y., Oct. 6.

GENERAL MANAGER SECOR'S STATEMENT TO THE DEPARTMENT OF AGRICULTURE.

Mr. Root: — I noticed in last GLEANINGS that you had written to Wedderburn, of the Department of Agriculture, in reference to food adulteration and a remedy therefor. That puts me in mind of a letter that I addressed to the same person Oct. 15th, a copy of which I inclose herewith.

I learned somehow that the Agricultural Department was taking up this subject of food adulterations, and I addressed the above-mentioned letter for the purpose of opening correspondence, and to learn what we could do as a society in bringing about reforms through the cooperation of the Department. It was my thought that, if the Department is making a chemical study of honeys, we might get specimens analyzed free of cost. I have not yet received a reply to the inclosed letter; but if I do, and it is favorable, I shall follow it up.

This is simply to let you know that I am not indifferent to the interests of the Union.

EUGENE SECOR.

Forest City, Iowa, Oct. 20.

A. J. Wedderburn, Chemical Division Dep't of Agriculture, Washington, D. C.

Dear Sir: — I am informed that you are making special investigations as to the extent and character of the adulteration of foods in this country. The association named at the head of this letter, and which I represent, is especially interested in measures to prevent the adulteration of honey—more specifically, extracted honey. I should be glad to receive your cooperation in ascertaining to what extent extracted honey is adulterated, as found in the markets of the cities.

It is our hope to obtain legislation wherever needed in States, or, what we would think much better, by Congress, in the interest of pure food. We fear that there is a good deal of adulteration of the honey product by the admixture of glucose, which is probably the only adulterant that would make it profitable.

If, in your investigations, you are authorized to take up the subject of honey, I should be glad to correspond with you further in regard to it.

Yours truly, EUGENE SECOR.

Forest City, Ia, Oct. 15.

BEGINNERS
QUESTION
BY E.R.
ROOT.

L. F. H., Pa.—I can not tell you whether the blossoms of the coffee-tree of commerce yield honey or not. Can any of our subscribers give us any information in regard to this?

S. K., N. Y.—I would advise you to advertise your bees in some local paper. On account of the express charges, and the difficulty of transporting to a distance alive, we recommend disposing of one's bees in one's own locality if possible.

P. D. S., Ohio.—I think you will be able to have your queens fertilized this season. The drones will be present for some little time yet. Queens not fertilized this fall will stand a good chance of mating next spring.

E. F. T., Mich.—Candidly, I doubt very much whether it would pay you to put any ointment or cure for bee-stings upon the market. Most bee-keepers care very little for the stings. The best thing I know of is to remove the sting and then grin and bear it. The more one tries to doctor up the stings the worse he usually makes them.

C. O., Wis.—Replying to your inquiry of a late date I would state that I would not pay over $2.00 for a colony of hybrid bees in a box hive. Such colonies have been bought many and many a time for from $1.00 to $1.50. Nowadays the hive, if of modern construction, should be worth at least as much as the bees. A box hive is worth practically nothing. For transferring, see instructions given on page 32 of our catalog.

W. I. H., S. C.—By white pine I mean lumber from pine-trees in the North. The pine of the South is apt to be pitchy, and is much heavier per square foot than the pine of the North. I recommend white pine because it is easier to work, easier to handle, and much lighter to lift. Of course, the heart part of these southern or northern pines is better than the lumber on either side of the heart.

W. M. P., Ohio.—I should be inclined to think from your letter that the bees had something in the hive which they regarded as a queen. It may be a fertile worker, it may be a virgin queen, or it may be a laying queen which is so small and dark that you would not be able to recognize her. I would not advise you to give this colony to another hive of bees. Give it a frame of eggs and brood if you can find any in your apiary. If they build cells you may know they are queenless. In that event I would advise you to unite them with another colony. Cage the queen, before introducing her, in the regular way. The main thing is to make sure the colony is queenless before attempting to unite; and if they build cells before giving them larvæ or eggs, then that settles it.

J. W. S., Ky.—It is so late now (Oct. 14) that I would not advise you to transfer by the short method described in our catalog. You'd better use the old method, or the one that involves cutting out the combs of honey and brood, and fitting them into the brood-frames themselves. Of course, you would need to pull apart the old box hive, or whatever they happen to be in. For directions in regard to this method of transferring, see any of the text-books, and especially our A B C of Bee Culture.

Bees will build combs at this time of year—that is, providing you give them frames of foundation wired, and feed them; but the weather needs to be warm, and you should have had some previous experience in feeding bees. Perhaps, taking it all in all, it would be better for you to wait till next spring before you transfer. If you do not change to the other hive, you would need to make sure that the old one has stores enough to carry it over till next spring.

Editorial

ON the afternoon of the 24th of October there arrived at the home of the editor of the *American Bee Journal* a beautiful baby girl. Both mother and daughter seem to be doing well. We extend to Bro. York our heartiest congratulations. Give the baby a kiss for us Medinaites.

THE writer or editor who furnishes the matter for "Beedom Boiled Down," in the *American Bee Journal*, is doing some good work. The items are not only carefully sifted, but clearly and forcibly put. I think I recognize, not the handwriting, but the earmarks of the writer.

INFORMATION has come to us that J. H. Martin, so well and favorably known to our readers, is now very sick. We hope the report is either not true or else that our friend the Rambler has passed the danger-point. J. H. Martin was first heard of in York State. He then became known to the bee-keeping world as an inventive genius. Later on he began rambling through the East for GLEANINGS, and his articles appeared in these columns. His rambles among bee-keepers extended finally across the continent to California. Later on a serial story, so fresh to all our readers, came forth from his pen.

J. H. MARTIN.

NIVER AND HIMSELF.

AMONG the bee-men whom I met recently in York State was S. A. Niver, to whom I have already referred as being the chap who had a tongue that was "balanced in the middle." Well, with this facile tongue he knows how to sell honey, and get bigger prices, I am told, than almost any one else, even selling the same goods. Mr. Niver generally styles himself "Morton's brother-in-law." Morton, you know, is the *bee-keeper*, that inventive genius to whom I have already referred, and it is he who *produces* the honey. It is Niver who *sells* the goods.

It is with peculiar pleasure that I introduce to you in another column "S. A. Niver and himself." Among Niver's other accomplishments is guitar-playing; and the picture elsewhere shows him not only playing the guitar but looking at himself in another chair. In other words, Mr. Niver appears to be one of those remarkable chaps who are able to do two things at once—sit in two places at a time—that is to say, in this case at least, is able to assume the *role* of beginner in guitar-playing and instructor in the same art at one and the same time.

I need hardly say this is accomplished by a trick in photography. Two "exposures" are taken on the same plate. When the first sitting is taken the negative in the camera is covered with black paper, just half way; then an exposure is taken on the uncovered end. A second exposure is then made, but the other end of the negative is then covered.

Mr. Niver, besides being a glib salesman, is a real fun-maker. To illustrate: At one of the county bee-keepers' conventions which I attended, while we were enjoying the picnic dinner a certain young man had just delivered a "drive" on his friend Niver. Quick as flash, Mr. Niver, with eyes beaming with earnest sympathy, turned about and said to the rest of us in a confidential tone, "Oh, yes! Harry is an awful good boy. He has only one fault. When he eats pie he *will* muss his ears;" and Harry was eating pie just then. Of course, this raised a roar of laughter.

FOUL BROOD INCREASING IN THIS COUNTRY.

WE are receiving, almost daily, suspected samples of brood which we are requested to diagnose. In nine cases out of ten they prove to be foul brood. To-day (Oct. 20) I opened a sample of one of the worst cases I have ever seen. The odor from a colony affected would be sufficiently strong, I think, so that it could be detected several yards from the apiary. At all events, it was the "loudest"-smelling sample I ever came across. This almost daily receipt of samples of affected brood from all parts of the country is alarming.

I have already found where this disease is making headway in portions of the United States that have more colonies and more bee-keepers to the square mile, I believe, than any other place in this country. In fact, the disease is apparently starting up all over the land, and it will need some vigorous measures and some good legislation to keep the disease in check. I would suggest that, in those States where there is no foul-brood law, bee-keepers send in a big petition to their next general assembly, asking for the needed legislation.

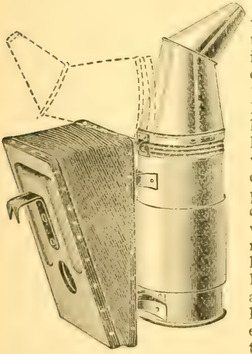
A foul-brood inspector (N. E. France, of Platteville, Wis.) has been appointed for Wisconsin. A law was recently enacted; and with the State back of him the inspector proposes to make a clean sweep of the State.

The good work done by foul-brood inspector McEvoy, of Canada, is too well known to need mention, and now the Canadian bee-keepers are practically masters of the disease. We on this side of the line can not afford to let it get the start of us. Our catalog, our A B C book, and, in fact, nearly all of the text-books on apiculture, give good methods of treating the disease.

In the mean time, let the friends continue to send in samples of foul brood securely wrapped in paraffine or greased paper, and packed in a tin box. A wooden box securely nailed, and water-tight, will answer in lieu of a tin box if that can not be obtained.

A SMOKER-HOOK—A COUPLE OF COGGSHALL'S IDEAS.

When I was at W. L. Coggshall's he showed me the convenience of having a hook placed on the back of a smoker in such a way that the smoker could be caught on to the edge of the hive while the operator is at work over it. Mr. C. explained that it was a waste of time to have to stoop down to the ground to pick up a smoker that, in nine cases out of ten, would be tumbled over on its side, and burning at a very low ebb. He would have a smoker within a few inches of the hand, "right side up with care," and the draft fully on. The hook is a piece of strap iron, bent in the form shown, and fastened to the top of the smoker-bellows. The cut below shows the idea :



Another valuable feature of the hook is that it may be hitched on to the "apiary-cart." Mr. Coggshall has a sort of hand-cart that will hold four extracting-supers full of combs. This is within arm's reach. Then having the smoker shoved along from one hive to another ; and while the operator is at work it stands attached to the top edge of the hive or of the cart, up in the air, it can be seen anywhere in the apiary.

Many and many a time I have lost track of my smoker ; and in order to find it I have had to peer around all the hives, and finally succeeded in locating it on its side in an obscure place, half gone out. I do not know but we shall have to supply our smokers with hooks next year. They would be put inside the fire-cup, and the bee-keeper can attach them or not as he chooses. Those who already have old smokers can make hooks and put them on this winter.

Incidentally it will be noted that the smoker bellows-boards above illustrated are grooved around the sides and top edge. The purpose of this groove, as I have before explained, is to enable the operator to get a better grip on the smoker. When the fingers are wet with perspiration or honey, sometimes the smoker will slip out of the hand. But this groove entirely prevents it. It will be remembered that Mr. Coggshall some time ago recommended cleats; but it seemed to be better and far neater to have grooves ; and these we have put on all our late-made smokers.

A BEE-HUNT AT MEDINA.

Did you ever go out on a genuine bee-hunt—the good old-fashioned kind that our fathers and grandfathers used to tell us about? About a year ago, hearing that a bee-tree had been discovered a mile or more east of Medina, I determined that I would have some of the fun I had heard so much about. Two or three of our shop boys were invited to go along. No, come to think about it they invited *me*. Implements? Yes, we had lots of them — axes, a large crosscut saw, veils, dippers to dip up the gallons (?) of honey ; smokers, honey-knives, and every thing else galore, besides a horse and wagon. The horse was warranted to be sting-proof, and not to run away.

We had previously obtained the consent of the owner of the tree to cut it, and the afternoon was "just lovely." Two of the boys went crosslots on foot, taking along a gun, while the rest of us rode. For fear that I might miss an opportunity of getting a fox squirrel I took along my double-barreled hammerless ; and that I might be able to preserve in permanent form some of the exciting incidents of the bee-hunt, I took the camera that makes many of the pictures for Gleanings. Arrived at the bee-tree, the boys pointed out where the bees were located. I squinted and looked, and looked and squinted, but could not satisfy myself that there were any bees in that tree. As my shotgun was conveniently near I thought of a little scheme. I would fire at the place where the bees were supposed to come out. Perhaps that would stir them up, and it did ; but—"Whewation, boys ! see that big fox squirrel ! " I shouted. I was seized with the "buck-fever," and never once thought of letting him have the other barrel till too late. The squirrel seemed to me to jump from the very hole where the bees were. I had expected bees, but not game. Well, as he disappeared in another tree we pursued after him. My shot had called the other man, and we together went squirrel-hunting, leaving the bees to make things interesting for the other fellows. After we had hunted a while we came to the conclusion that Mr. Fox had found another convenient hole. We gave up the search, and came back to the bee-tree.

Two of the men—one of them Mr. Dannley, who makes the foundation-rolls, and the other one Mr. Hammer, who has been working on the Weed deep-cell dies—were at work sawing the bee-tree down. I laid the gun aside, took up the camera, and took a "time exposure."

Perhaps some of you do not know how our Ohio woods look in the month of September. Elsewhere in this journal you will see the bee-tree, and just at the foot of it the two men with the crosscut saw. The place where the bees were located was just above the crotch of a limb broken off very near the top of the picture, on the left-hand side of the tree.

We all took turns with the saw and with the ax. Some of us were not very expert with the last-named implement. I noticed that, while I chopped, the rest of the crowd departed to a distance. Notwithstanding this, between us the tree began to show evidences of falling. Anticipating a big skirmish when it should fall, we put on our veils and lighted the smoker. A few more blows of the ax, and the monarch of the woods began to totter and fall. Down it came with a cr-r-ash! It was a little lively around the knot-hole where the bees were coming out; but after we began chopping and sawing again to get at the heart of the tree where the bees were, they quieted down.

Just about this time we heard the chattering voices of schoolchildren echoing in a distant part of the woods. In a few moments more, greatly to our surprise we found ourselves surrounded by a whole school of children, who, hearing that we were going to cut down a bee-tree, had come to see the "fun." The schoolma'am, who was doubtless equally anxious to see some of the same sport, readily consented to dismiss school at an earlier hour. The bees had now quieted down, and the children became bold enough to cluster around the log where we were at work trying to scoop out the bees and honey (?) with a dipper. There were combs in plenty, but little honey.

Just about as we had finished our task and passed around several hunks of the delicious morsel to the owners of eager eyes and hungry mouths, I set up the camera again and took another shot. In another view elsewhere you will find the result. The most remarkable thing about the whole picture is that the children are bareheaded, barearmed, and in some cases barefooted, while *we professionals* had veils on and smokers in our hands to prevent getting stung. I did not realize the incongruity of the situation till too late. Then with as much grace and ceremony as I could command I offered my veil to the prepossessing schoolma'am. But this she kindly declined. I then offered it to some of the older girls, but with a like result.

Did any of the children get stung? Only one of the boys, I believe, who, while astride the log, looking into the cavity, happened to sit upon an unlucky bee. We all knew the *precise* moment when the sting pierced his pants, you may be sure.

The significant fact is, that those of us who wore veils were stung more than the children, and the reason is very evident. When bees are demoralized by pounding, as by the chopping open of their cavity, they seem to lose all desire to fly and sting. They just crawl and crawl, and crawl up under the veil, and, failing to get out, sting.

Some little time ago a lady wrote a story which was submitted to us for consideration, on the subject of bee-hunting. She went on to state in this story how angry the bees became while the tree was being cut open; how they took possession of the land for miles around; how it was not safe for man, boy, donkey, or chicken to be anywhere near that vicinity, and how cross the bees were for days afterward. When I had finished reading that story I came to the conclusion that *that* writer had never had any experience in bee-hunting.

Did our bee-hunting experience pay in bees and honey? Well, hardly. All the honey we secured was eaten by the aforesaid schoolchildren; and the bees — well, there were about enough to cover perhaps two combs, and before winter they simply died. That they would have died anyhow from lack of stores had they been left in the tree relieved our consciences a little. But in experience and "piles of fun," as the boys said, we were repaid richly.

THE NEW STYLE OF SEPARATOR AND SECTION; THEIR IMPORTANCE.

SINCE the pages of "Stray Straws" were "made up" we have received another Straw from Dr. Miller, which, in order to get in this issue, I insert right here:

> THE NEW PLAN of sections and separators, as mentioned, p. 744, has interested me more profoundly than any new thing in bee-keeping for some time. I've hardly settled down to a fixed opinion yet, but I am thoroughly interested. A principal question with me is that of cost.

It is evident that the doctor, at the time he sent the Straws, hardly knew what estimate to put on the new devices; but the more time he has had to think of it, the more "profoundly interested" he has become, and I think this will be the experience of thousands of others.

The doctor need have no fears as to cost. The separators are all made of scrap that has heretofore been burned; and as to putting the pieces together, that will be done by means of automatic machinery in the factory before the separators are sent out.

The reader will be interested to note what Julius Tomlinson, J. A. Golden, and A. I. R. say in this issue regarding these same things. Of late years our senior editor has somewhat lost his interest in bees, or, at least, has been compelled to turn his attention to other matters; but when I showed him the new style of separator and section, and explained their merits, his face fairly glowed with enthusiasm. He was also "profoundly interested," as will be evident by what he says elsewhere.

I do not know but I may be mistaken; but I believe the introduction of the new separator and section will be a great step in advance, and that the time will come when other styles of sections and separators will be largely superseded. The fellow that doesn't get "in the swim" next year will be the "worser" by a cent or two per pound for his comb honey, I fear.

ANOTHER BEE-BOOK FROM THE DEPARTMENT OF AGRICULTURE.

"BEE-KEEPING" is the title of another bulletin from the United States Department of Agriculture, by Frank Benton, Assistant Entomologist, that has just been issued at the government printing-office. It contains 32 pages the size of this, is printed in bold, clear-faced type, and is illustrated with suitable engravings. When the other bulletin was issued, the supply was exhausted in a very short time, and it became necessary to charge a small price in order to prevent the edition from being entirely exhausted. But it seems that, since that time, there have been frequent inquiries for information on matters pertaining to bee culture, and accordingly another more abridged book has been issued, and it is reasonable to suppose that this time the supply will be equal to the demand. The Entomologist, Mr. Howard, says: "Though it has been designed by the author primarily to answer a few of the specific questions which are most likely to present themselves to the mind of the inquirer wholly unfamiliar with the subject, the aim has also been to introduce in the treatment of the various topics information which it is hoped will lead many of longer experience to more successful methods than they have yet practiced."

The book, although brief, seems to be a complete text-book on apiculture; and as such I have no doubt it covers the subject in an admirable manner. The contents, as given on the first inside page, are as follows:

Locations suited to the keeping of bees; returns to be expected; all can learn to handle bees; to avoid stings; hive to adopt; swarming; dequeening; requeening; space near entrances; selection in breeding; special crops for honey not profitable; plants and trees for honey and pollen; to obtain surplus honey and wax; comb honey; grading and shipping comb honey; production of wax; wintering; general considerations; loss of bees through disease and enemies.

As I understand it, this work will be sent free to any who will apply for it. Make your request to the Department of Agriculture, Washington, D. C., asking for Farmers' Bulletin, No. 59, entitled "Bee-keeping."

THE ILLUSTRATIONS IN THIS ISSUE.

THE reader can scarcely fail to note the wealth of illustrations in this number, both in variety and in general excellence. Some of these pictures I took myself, and it is with peculiar pride that I show our readers some of *my own* work.

On my eastern trip last summer among bee-keepers I took a large number of photos with my large-sized folding Kodak. Some of the pictures I have already given, and there are quite a large number more that I expect to present later on.

Did you ever think that a picture will very often give to the reader in a moment of time information that it would require pages and pages of descriptive matter? Perfection in modern photography and half-tone engraving enables modern progressive journals to give their readers not only delight but real information, without the medium of a single word of language. I expect to show in next issue why honey in no-bee-way sections looks better.

A NEW IDEA — NOT GRADING-RULES, BUT PICTURES TO SHOW EACH SEPARATE GRADE AS IT SHOULD BE.

AN idea has occurred to me in the matter of grading honey, and it is this: Let there be a committee appointed by the next U. S. B. K. U. meeting to make one, two, three, or four grades of honey from some lots that may be brought in by the bee-keepers, or that may be purchased in the open market. They are to pick out, say, four representative sections that they would call "Fancy," and put them in a lot by themselves; four other sections that they would call "No. 1," and still four more that they would call "No. 2." Each section in the several groups should present as much variation as the grade itself will allow. That is to say, sections in the No. 1 grade, for instance, can't all be alike or equally good; but the picture of No. 1 should show the *limits*.

Now let there be a photo taken of each of the lots, "life size," said photos reproduced in half-tone, and printed on neat cards, each card to be labeled "Fancy," "No. 1," or "No. 2," respectively.

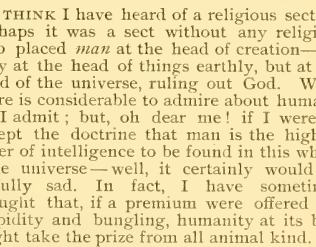
You see the point. A picture will describe at a mere glance what a body of bee-keeping experts would regard as extra fancy, as No. 1, No. 2, and so on. The trouble with the ordinary grading-rules is that *language* is not adequate to describe the limits of fancy, No. 1, etc., and hence arise the confusion and general dissatisfaction.

This suggestion came to me while I was at the apiary of Miles Morton, in York State. His brother-in-law, Mr. Niver, showed me how he would grade his honey, and placed the sections in four different lots. Of these I have secured a nice photo, and Mr. Niver will, later on, be able to show you just how *he* grades honey.

THE EVOLUTION OF THE SECTION HONEY-BOX; THE PROBLEM OF LETTING THE BEES IN AND LETTING THEM OUT.

I THINK I have heard of a religious sect, or perhaps it was a sect without any religion, who placed *man* at the head of creation—not only at the head of things earthly, but at the head of the universe, ruling out God. Well, there is considerable to admire about humanity, I admit; but, oh dear me! if I were to accept the doctrine that man is the highest order of intelligence to be found in this whole wide universe — well, it certainly would be awfully sad. In fact, I have sometimes thought that, if a premium were offered for stupidity and bungling, humanity at its best might take the prize from all animal kind.

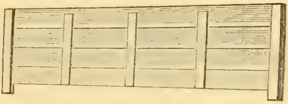
The above reflections were suggested when the boys showed me an improved honey-box or section. What do you suppose it was? Why, it was a little square frame, as shown in the picture below—the one that is smooth and level all around, without any openings for the bees, or any thing of the sort. The first honey-section I ever made (8 to fit into a Langstroth frame) was of this description. You will find a picture of it on the front cover of GLEANINGS for September, 1876. We



THE OLD AND THE NEW 1-POUND SECTIONS.

already had foundation to get the bees to build their comb true inside of the sections; but, of course, a honey-box must give the bees access. I at first decided to move my wide frames, each one holding eight of these sections, a little way apart so the bees could get in all around; and, in fact, our first section was a brood-comb full of sealed honey composed of eight little frames so they could be taken apart and sold. In a little while we had sections touching each other, or closed, at the sides, but open at the top and bottom. Doolittle and Capt. Hetherington first used this style, if I am correct. Some of them had simply a narrow bottom-bar, and were closed all the rest of the way round. Finally the bee-keepers of the world settled down on a section closed at the sides but open top and bottom; and for nearly twenty years these have filled our markets, or something similar. It is true that some inventive geniuses (Danzenbaker among them) made sections not touching each other the *whole* length of their perpendicular sides; and in this manner they secured sections of honey without little holes being left in the corners.

Separators were *long ago* decided to be a necessity. Then somebody said they were *not* a necessity. Then we came back to separators. We had them of tin, wooden veneer, wire cloth, perforated metal, and perforated wood; and the shapes and forms were so great and curious that a volume might be written in regard to separators. I do not know but we had the separator figured below.



A WOODEN SEPARATOR MADE OF SLATS.

This separator is made of thin strips of basswood, polished and sandpapered. It has panels in each side like a portable fence. In fact, I believe the boys have decided to call it the "fence" because it is a shorter word than separator. The openings in this separator are in width about the same as in the perforated zinc. The up-and-down slats on each side of the separator are also of about the thickness of these perforations, or ⅙ of an inch. This fence is made very accurate by means of ingenious and perfect machinery. When the smooth planed sections are put into the cases, this separator brings every thing to a small fraction of an inch just where it ought to be. There is very little scraping or cleaning to be done. The box is smooth all round. In fact, you can sandpaper its edges after it is filled with honey, without much danger of injury. When the sections are packed up for shipment, the honey in one section never bumps that in the next one, for they are exactly alike; and yet they pack up so close and solid when crated for shipment that each cake of honey almost touches the honey surface of its neighbor. There is no waste of room.

Let us now go back to my starting-point. After twenty years of studying and experimenting, trying devices not only sufficient to fill the Patent Office buildings, but after having made experiments so varied that great volumes would be needed to record them, we come back to the place where we started. These experiments in this research were not made by only a few persons, but *thousands* have studied over the problem for years, and racked their brains far into the small hours of the night; and yet it would seem just now as if it had amounted to almost nothing — at least, my impression is, after having seen the honey in these simple sections, and after having looked over the apparatus for producing it, that it must very soon take the place of all other styles of sections.

Now, I know full well, dear friends, that this style of section is not new. In fact, I said so at the outset; and, so far as the separator is concerned, a good many bee-keepers— our good friend Oliver Foster prominently among them — have used and advised a separator almost like this one.

As I grow older, and look back, I am reminded that this queer experience in bee culture is not an isolated case. Electricity furnishes many such examples. Forty years ago we were very near electric locomotion. When your humble servant, *more* than forty years ago, traveled from town to town exhibiting an electric motor, he predicted to the good people who came out to hear him talk, that, in a very short time, electricity would supersede steam as a means of travel. His prediction looks *now* as if it might come true. But he had to wait over *twoscore years* before inventive genius got round to it. Shall we be disheartened? God forbid. Let us, rather, roll up our sleeves and do the best we can. Blundering keeps us busy; and if we do it with the love of God in our hearts it *makes us happy;* and in *due* time we *shall* reap *if* — we faint not. A. I. R.

THE SENECA COUNTY BEE-KEEPERS' PICNIC AND BEE CONVENTION.

AMONG the counties where bee-keeping flourishes, and where honey is produced by the ton and by the carload, is Seneca Co., lying between the beautiful lakes of Seneca and Cayuga—two lakes whose length is about forty miles, with width ranging from three to five. It is in this section of country, especially along the shores of these lakes, where immense quantities of beautiful fruit are produced, and bees and bee-keepers — they are almost as thick as the fruit-men.

Along in August I received an invitation from the secretary of the Seneca Co. Bee-keepers' Association, Mr. C. B. Howard, to be with them at their next meeting at Elm Beach Park. If I would promise to come they would arrange the date to suit my convenience. As I was going through that part of the State I very gladly availed myself of the pleasure of meeting so many York State Bee-keepers all together. Accordingy, on the 31st day of August I met them, as per appointment, at Elm Beach Park, on the shores of Seneca Lake.

Owing to some bungling on the part of the railroad company, my bicycle had been carried in a baggage-car past my destination; and when I arrived at Romulus, the nearest railroad station, some seven miles distant, I was without means of getting to the bee-keepers' picnic in time. A horse would be too slow. I finally hunted around and found a blacksmith who was working for Mr. Howard's father-in-law, who knew that I was going to that picnic. I was afraid that I could not identify myself satisfactorily; but he accepted my story, and told me to take his wheel, and welcome. With this I managed to get down to the picnic grounds in time to meet the bee-keepers, but not in time to enjoy their bounteous dinner. Arriving there, the president, Fred S. Emens, introduced me, all sweat and out of breath, to the company there assembled, and then added that I was expected to take up the rest of the time of the convention, after which we would take a little ride on a steam-yacht that would be at the landing ready for us.

I will not attempt to repeat what I did or did not say to the bee-keepers that day relative to bees; but after the convention adjourned I craved the privilege of taking a photo of the company, and the result is shown herewith.

THE SENECA COUNTY (N. Y.) BEE-KEEPERS' CONVENTION.

The president, Mr. Emens, with a section of honey in his hand, sits at the front; and Mr. Howard, the secretary, sits at his right, holding his four-year-old in his lap. At the left of Mr. Emens is Mr. B. D. Scott. A few days later, having lost my way, and seeing some bees across the roadway I decided to call and make some inquiries, never dreaming I should ever meet any one who knew me. A pleasant voice from around the corner of the house called out, "How do you do, Mr. Root?" This proved to be none other than Mrs. B. D. Scott, whom I had met a few days before. After looking over the beautiful honey and making a very short stay, I was directed on my way. But, to return.

I am not able to give you a list of the bee-keepers, and so I asked the secretary to furnish me their names. Here is a partial list, given me as he could remember them:

Mr. E. R. Root.—I find there are some faces which are not familiar to me, but will give you the names of those that I know, and will make an X for those that I can not recognize. I will commence at the tree on the back row. B. E. Bradley, Henry Hamilton, Mrs. T. T. Covert, M. W. Abbott, Mrs. Abbott, Mr. Sutton, Matt Sutton, W. F. Marks, Mr. Emens, J. B. Whiting, D. H. Townsand, Miss Townsand, Mrs. White.

Row 2.—Mr. Perry, Mrs. J. C. Howard, Mrs. Sutton, Miss Sutton, Mrs. C. A. Munson, Mrs. Asa Slack, X, Henry Mauger, Chas. Baldridge, vice-pres.; Geo. B. Lamoreaux, J. W. Newman, Mrs. Newman.

Row 3.—Joe Haney, Mrs. W. E. D. Gibson, M. T. Williamson, Mrs. Bailey, X, X, X.

J. C. Howard, Mrs. C. J. Baldridge, D. R. Ambrose, Wm. Gilland.

Row 4.—B. F. Howard, H. S. Lyke, Asa Slack, C. B. Howard, Sec. and Treas.; Fred S. Emens, Pres.; B. D. Scott, Mrs. C. B. Howard, Mrs. B. D. Scott, Parker Brown, Ira Wilson.

Although there are shown only abont sixty bee-keepers, if my memory serves me correctly there were something like a hundred present. When I got ready to take the picture, some had gone home.

It seems a little strange to us Westerners that single counties in York State could muster up more bee-keepers and more enthusiasm and more honey than whole States in the western and central parts or the country; but such seems to be the fact.

Ontario, bordering on the north-east, is another county that has now an international reputation from the fact that its county association, through one of its active members, Mr. W. F. Marks, also present at the convention shown above, first began the agitation in favor of *Apis dorsata*. You will remember that a resolution was passed, urging the general government to secure an importation of these bees. A request was also made of the North American, asking that association to pass a similar resolution. A full history of the whole matter is given on page 672. Well, Ontario also produces its tons of honey. Tompkins Co. produces more, if any thing, than either Ontario or Seneca. Then there are other counties like Onondaga, Otsego, Schoharie, and Albany that produce as much as some of their sister counties, but I shall have more to say concerning these and other counties at another time.

NOTES OF TRAVEL
BY A. I. ROOT.

A VISIT TO THE OIL-REGIONS NEAR WASHINGTON, PA.

I have always been interested, not only in wells for water, but in wells that produce oil, gas, or, in fact, any thing connected with the development and bringing into use of any of God's gifts that have been stored away for ages under the surface of the earth. When I found the following in the midst of a business letter, you may readily imagine I was somewhat interested :

> *Friend Root:*—If you do not have sufficient excitement in Medina, come down to my place and I will take you all over the oil-fields, and show you the new wells. We have one here that has produced 90,000 barrels in about ninety days, and it is close to some of my property. H. W. VANKIRK.
>
> Washington, Pa., Aug. 19.

Soon after receiving the above I took the train at our place, and reached Bridgeport between one and two in the afternoon. Notwithstanding I have lived all my life so near Wheeling, W. Va., I never before had caught a glimpse of the beautiful bridges that there span the Ohio River. May be the circumstances and surroundings had something to do with it; but it seemed to me then that that beautiful suspension bridge surpassed in grandeur and sublimity any similar structure I had ever seen at Niagara Falls or anywhere else ; and while I was wondering whether it was really a paying transaction to make such a magnificent structure just to get across the Ohio River, I was reminded by a man at the entrance of the bridge that I had not paid my toll. How much do you suppose it was for going across? Just *one cent!* At the other end of the bridge you pay another cent to get off. But there are really two bridges. The first one strikes the island on which is part of the city of Wheeling; and then another bridge goes from the island over the main part of the river. At the St. Louis bridge, you may remember, I paid ten cents for going over with my wheel, whether I walked beside it or rode, the same price as for any other "vehicle."

When I got over to Wheeling I found myself on part of the same national pike that I described while going through Belmont Co. It runs over into West Virginia, and through to Washington, Pa. Others as well as myself enjoy riding over this beautiful national pike, for I found wheelmen and wheelwomen going and coming almost constantly. On this pike through West Virginia and Pennsylvania the L. A. W. have put up mile-posts at the end of every mile. This gives you information in regard to distances both ways to and from the prominent towns. Not only that, where there is a hill at all dangerous a conspicuous board neatly painted is put up as a caution to wheelmen. I think it reads something like this. First in large letters is the word "*danger;*" then in a few words below, the wheelman is admonished of just the kind of danger he is to look out for at the foot of the hill. Now, it grieved my heart to find that a good many of these danger-boards had been smashed to pieces by throwing rocks at them, there being plenty of said "rocks" all along the national pike. This sort of vandalism is getting to be really a serious matter. I have actually got off from my wheel, picked up the fragments of a sign-board that had recently been smashed, and then in despair have gone several miles out of my way, and possibly been obliged to ride over a dangerous road after dark, just because of this fashion of destroying sign-boards as fast as they are put up. In our county I have noticed some very pretty ones made of malleable iron. But some of these iron signs have been twisted and bent up so you have to get off your wheel to see what they read. After a few boys have been severely punished, I think perhaps this sort of "sport" will be broken up.

The nearer I got to Washington, the thicker were the oil-well derricks until it really made one think of the masts of schooners in a crowded bay along the ocean-side. After night the whole country was illuminated and made cheerful by the blazing of gas-jets. Beautiful lawns with curved walks and shrubbery were lighted up at night by gas-jets two or three feet high. The gas seems to be so plentiful there it does not seem to be extravagance to light up not only the houses but the doorway yards and lawns.

I found my friend Vankirk at Vankirk Station, five or six miles from the city of Washington. As I rode up in front of his residence I found him and his hired man just getting ready to start out to work. (Of course, I stayed in Washington over night.) When I rode up to where they were busy in hitching up their team I said, "Good morning, boys. Do you suppose there is anybody around here who wants to see *me?*"

You ought to have seen friend Vankirk's face light up after he had taken in the situation. While he changed the order of business and called for a horse and buggy to take us around to the oil-wells I shook hands with the old father and mother, got acquainted with the children and grandchildren, looked over the strawberry and raspberry patch, took a glimpse at the apiary, gazed my fill at the tops of the great hills, and then away down into the valleys. Oh what hills they *do* have in Pennsylvania! And the funniest part of it is, they grow tremendous crops of corn, not only on the side hills, but over the very tops. They do not use fertilizers at all, if I am correct, and but very little stable manure, because they do not have it to use. But in some way or other they manage to get magnificent corn. As nearly as I could find out it is done by a system of rotation and plowing under of clover or timothy at regular periods.

The place where the great excitement has recently started up is away back in the hills, a good way off from "anywhere." Something like twenty wells have already been put down. Out of twenty, two were paying tip-top ; three or four moderately, and a dozen or more are almost dry wells. The gas and oil are found at a depth of from 2800 to 3000 feet. Enough gas has been found in the locality to run all the engines, and there is quite a system of piping to carry the gas to wherever a new well is being put down. Another system of pipes, to carry water, is also needed.

Before we reached the big well I was so used up by climbing hills that I told friend Vankirk I could not go any further and keep up enthusiasm until I had had my regular nap. We found a place where a new dining-hall had just been put up; and I tell you I had a real nice dinner with the well-drillers. I believe they are mostly rather rough in their manners and talk; but friend V. (you remember about the Sunday-school, building and all, that I told you he was largely instrumental in starting) found an opportunity at the dinner-table to discover one or more of the boys who had attended the revival meetings; and I tell you it was refreshing indeed to find even in that crowd that there were at least a few who loved the name of the Lord Jesus Christ.

I had a very refreshing nap in a new room made of rough pine boards; and before taking my nap it was my privilege to pray that the spirit of the Lord Jesus Christ might find a lodging-place in the hearts of those who were delving away down in the depths of the earth for these hidden treasures that God has placed there for his beloved children.

By the way, it seems a little queer that there are just as many wells, if not more, clear up on the tops of the hills, than there are down in the valleys. When we think of the extra labor required to pull timbers and great heavy iron pipes and massive drills up on to the tops of those hills, one might suppose that, so long as it is all guesswork any way, the prospectors and projectors would choose to locate in the valleys. I tried to find out by inquiry what it was that guided them in deciding where to sink a new well. It costs three or four thousand dollars to get down to the proper depth. As nearly as I could find out, they work this way: After a successful well has been struck, others locate around it — not getting too close, however. Now, suppose that oil-wells are failures except in a certain course from the first good one. Of course, the new ventures will be off in a similar direction to this second successful well. In that way they begin to lead off in a certain direction. The first well may be just on the edge of a good field. In that case, the question is to decide in which direction the *center* of the field lies. Now, in connection with the above facts the disposition of the party who owns the land adjoining has much to do with it. Some men will be exceedingly liberal in making terms for drilling test-wells. Others will hold off for better prices. So you see we have two factors to decide where a test-well shall be put down.

Along with the oil come gas and paraffine. The latter seems to be a substance that comes out with the oil, but separates, coating the tubes, the sides of the tank, and every thing else, with its grease. I presume one reason why the flow of any new well gradually subsides is because of the accumulation on the pipes of a coating of paraffine.

The most important well of the group gave about 2000 barrels of oil per day, or pretty nearly that, when first opened; and for three months past it has averaged about 1000 barrels a day. When I was there it was giving some 600 or 700 barrels. But the oil comes intermittently. Some wells do not give oil at all except at stated periods. These periods may be once a day or once in three or four hours; and at times the pressure of oil and gas is so great that the iron pipes writhe and twist about like a snake as they discharge their volumes of gas and oil under the strain of a pressure equal to or perhaps greater than that in many steam-boilers.

Now, friends, there is something very enticing and even fascinating about starting up a new industry away back in isolated country places like this one. It is exceedingly refreshing (especially about *dinner time*) to find a brand-new boarding-hall, clean dishes, pleasant, nice-looking women, and every thing to indicate enterprise and go-ahead. It was pleasant to see the well-drillers doff their overalls, wash up, and sit down to dinner, with hair nicely combed, etc. It was the great well that was spouting forth its treasures, but a few rods away, that furnished the *money* for this enterprise. It is quite likely a town will be built up here, for the Standard Oil Co. has already run up a pipe-line to take away the oil. The wives and mothers will need to come into the neighborhood, and children's voices will be heard; and then, oh how *great* the need of a Sunday-school as well as day school, and a little church! And if these people expect to prosper and be happy, there will needs be a *Sunday* to be remembered and kept holy. May the great God above help our people, in starting things of this kind, to remember they can never be prospered and enjoy real happiness without *righteousness* and *godliness*.

OUR HOMES.

Remember the sabbath day, to keep it holy.—EXOD. 20:8.

The following was read at a semi-annual conference at Chatham Center, Medina Co., O., Oct. 21:

THE CHRISTIAN SABBATH; OUR HERITAGE AS A NATION AND INDIVIDUALS.

Towering high above other blessings we have from the beginning of our nation a heritage of Christian principles; and who that thoughtfully contemplates the past but accepts as true the following words? "There is no heroism like that which comes from hearts filled with heavenly influences."

I am often surprised at the coolness with which many appropriate all the benefits of this government for themselves, and rail at Christianity, but for which there would have been no nation such as this has been in the past, and is now. I would suggest to them, if such be really their honest sentiments, that they make their dwelling in heathen lands, where they will not be troubled with the demands of the Christian sabbath. When we try to contemplate the beginning of our sabbath, the seventh period of time that God hallowed, we seem to stand awed amid creation's dawnings, and hush our breath to listen to the music of the spheres as the morning stars together sing, and, echoing down the ages, there breaks upon our startled ear, "Remember the rest day, to keep it holy."

In the words of Daniel Wilson, "The sabbath stretches through all ages, affects all men in every period of time, distinguishes the true servant of God from the wicked, more than any other ordinance, upholds the visible profession of religion before the eyes of mankind, is the most direct honor that a man can pay to the name and will of the ever-blessed God, and will never cease in its authority here till our sabbaths on earth give place to that eternal sabbath of which they are the pledge and the preparation." How startled and confused we should be to hear a literal rendering of our opinion in reference to God's command as given by our acts! Do not the actions of even Christian people often say, *remember*, *unless* it interferes with your personal plans and pleasures, or makes you different from those about you? Never, until the rest day is kept holy, can the power of dollars and cents (now ruling with sovereign sway) be broken. Never, until then, can the thoughts, aspirations, and *politics* of the land be lifted above the mere greed of gain. Eternal vigilance is the price of every thing that is valuable. True, there are bands of earnest men and women engaged in a hand-to-hand fight upon the question of sabbath or no sabbath; but mostly it is personal work or influence that accomplishes desired results.

But we must set the key-note of our observance *very* high. Especially those high in position and influence should do so, as they are a target for criticism, and may be obliged to decide against certain specific things which their own consciences would ordinarily permit *them* to do, but which they could not do on account of their position.

I have tried seriously to bring these subjects before you, touching upon points for your further thought, instead of trying to amuse you for the time, as I hope it is not with you as has been said of multitudes in the cities, that they need a new set of beatitudes, reading, "Blessed is the man that has money and fun," instead of "Blessed are the pure in heart, for they shall see God." Or, "Blessed is the man that has a job, because he can go to a show," instead of "Blessed are they that hunger and thirst after righteousness," or, "Blessed is the man that has fifty cents, for he can get a dish of ice-cream for his girl and himself."

During the past year California has been the banner State in *work* along the lines of sabbath observance; but it is yet far from being the banner State in general sabbath observance, though some years ago a San Francisco pastor said he had seen the best sabbath observance among the Christian people of California, and some of the characteristics were reverence tempered with love, joyousness, and rare fidelity in Christian service.

The victories or defeats of this cause in one place affect all others. What a widespread stream of death and destruction we sent out from Chicago in 1893! Therefore it is supremely selfish in us to test this question, as we often do, as to what *we* may do by asking, "Will it do *me* any harm?" Every question about sabbath observance should be measured, not by its effects on *me* but on *man*, for whom, in his world-wide home, the sabbath was made. To Christ, the *soul* is the man; but what is man to us? Is it fine clothes, cultured speech, or fine horses? Or, as one has said, is man a "stomach with appendages," as seems to be the idea of those who quote Christ's words as indorsement for Sunday feasting and picnics. On five different occasions Christ indorsed the sabbath as of perpetual and universal obligation; but many, who dimly perceive that he antagonized *some* sabbath, have jumped to the conclusion that it was the original sabbath he condemned when it was only the human counterfeit. The Pharises had buried the restful soul-refreshing sabbath of Eden and Sinai under the rubbish of petty rules, such as, not to walk on grass, as the bruising of it would be a kind of thrashing, nor catch a flea, as that would be a kind of hunting. No woman could wear an ornament, because it would be bearing a burden, nor wear false teeth for the same reason. Some of us nowadays consider the wearing of the latter a discipline along the line of patience and perseverance. A radish could be dipped in salt, but not left there, as that would be making pickle; an egg laid in the way of regular business could not be eaten on that day; but if the hen was kept for fattening, and not for laying, it might be eaten, and so on through hundreds of pages of solemn trifling. It was these Pharisaic additions that Christ pushed away without reverence, and not the divine original or a Mosaic rite or institution.

A letter from Toledo, speaking of a young man who stepped from the cars to a saloon, and stayed half a minute too long last Sunday night, says, "The saloons make scarcely a *pretense* of closing Sundays, but, in fact, are open *every* day and *all night*."

This is one of the greatest foes to sabbath observance. It is difficult to consider one without touching the other, as sabbath observance and temperance go hand in hand.

> These subjects vast, their weal or woe
> Portend the nation's growth or overthrow;
> And I myself, so weak, can only feel
> Its danger, and my helplessness to heal.

We have the testimony of many of our best men upon this question. Justice Strong says, "He is no friend to the good order and welfare of society who would break down our Sunday laws or set an example of disobedience to them." D. L. Moody says, "Show me the nation that has given up the sabbath and I will show you a nation that has got the seeds of decay." Daniel Webster said, "The longer I live, the more highly do I estimate the importance of a proper observance of the Christian sabbath." Henry Ward Beecher, "An abiding civilization has always gone with the Christian sabbath; and I believe it always will." Bishop Cheney, "If ever this country shall be the sport of revolution, the calamity will be seen to have entered through the rents of sabbath desecration."

Brother, sister, will you not each build over against your own house this wall of salvation to our nation, a holy rest day? Do not ape Naaman's indignation at this apparently small work, and refuse to dip in Jordan while you are looking for some large field of labor. I beg of you to see to it that upon the walls of the secret chamber of your soul are written by the Spirit's power, "Holiness to the Lord;" then you will be careful that no careless action or selfish pleasure dim the reflection of its light upon the world around you.

In closing, permit me to use Paul's words to the Philippians: "Finally, brethren, whatsoever things are true; whatsoever things are honest; whatsoever things are just; whatsoever things are pure; whatsoever things are lovely; whatsoever things are of good report, if there be any virtue, and if there be any praise, think on these things."

MRS. CARRIE BEACH.
Chatham Center, Medina Co., Ohio.

I wish to call attention to the second paragraph in the above. People are flocking to the United States from all parts of the world, and we rejoice to have them come, providing they will fall in line with our laws and customs, and *especially* recognize that our nation was founded on righteousness. The motto on our coin is, "In God we trust." But when foreigners come over here to enjoy the benefits of our free institutions, and commence straightway to trample down the sabbath, and try in every way they know how to cast ridicule upon Christianity, then these people should be taught *both* law and gospel. During the past season I have visited more pleasure-resorts than for many years, and I have told you something about them; and I have been very much afraid indeed that our people —and especially our young people—were in danger of forgetting the spirit of the beatitudes. I have been very much afraid, as our good friend has expressed it, that money and fun were being more thought of than being pure in heart; and those who are begging for positions for something to do are often the very first ones to flock to the circuses, even though they have lacked for money to buy flour only a few days before.

While it is right that we should enjoy the outdoor air, the companionship of friends, and possibly ice-cream and lemonade, please let us beware how we get down to that low level of spirituality where, instead of hungering and thirsting after *righteousness*, our hungering and thirsting shall be for a half-dollar and the ice-cream that it may purchase.

Again, we must hold fast to the Christian sabbath, even when it costs us money to do so.* A few days ago I wanted to cross the State of Ohio. It was going to cost me eight or ten dollars. When I inquired of our agent, "Do you know of any excursion that is likely to come off very soon in that direction?" he said:

"Oh! yes, Mr. Root, there will be one next Sunday, and you can go right down there and back for four dollars."

I shook my head, and reminded him that I did not believe in Sunday excursions.

"Why, Mr. Root, Sunday excursions are getting to be nowadays a most common thing. All the railroads give special low rates on Sunday."

I can not remember what else he said; but when it occurred to me that it was going to cost me something like a five-dollar bill to remember the sabbath day to keep it holy, I breathed a sigh. My friend may have thought it was because I felt bad about losing the five dollars. Bless your heart, no. I never yet lost money in all my Christian life—that is, lost it in the end—by obeying God's law to the best of my judgment, and I had no fear I should lose in this case. But I *did* feel sad and discouraged when I thought of the many Christians who are working perhaps for small pay, whose devotion to and love for the Master's cause is not quite equal to the cross of paying five dollars more for the privilege of traveling on a week day than it would cost them for going on Sunday. Once more, let me add emphasis to that remark of Bishop Cheny: "If ever this country shall be the sport of revolution, the calamity will be seen to have entered through the rents of sabbath desecration."

HIGH PRESSURE GARDENING

SCABBY POTATOES, AND HOW TO GET RID OF THE INFECTION WHEN IT GETS INTO YOUR GROUND.

This subject has been gone over a good deal, I know, and we have been told again and again how to kill the scab in our seed potatoes with corrosive sublimate. But suppose the scab is already in your ground—what then? Well, my impression has been, after reading every thing I could find on the subject, that there is no very reliable remedy known. The *Rural New-Yorker* suggested the application of sulphur. But I put a barrel of sulphur on about two acres of ground, and a *part** of this "medicated" two acres produced the scabbiest potatoes I ever saw. This year this part did the same thing again. And another piece, where I plowed under crimson clover, produced about 20 bushels of White Bliss potatoes, and not more than two bushels of the whole lot were fit to be called "firsts," on account of the scab. I began to think I should have to give up raising potatoes—at least on certain portions of my ground. Some years ago T. B. Terry spoiled a piece of his ground — at least he spoiled it for potatoes — by giving it a heavy dressing of cow manure. He sorted out all of his scabby potatoes, and fed them to the *cows* the year before; and then he had scabby potatoes, and no mistake, where *that* cow manure was applied. A few days ago I asked him if he had got that piece of ground "cured." He said the way he cured it was by not trying potatoes there since. That was several years ago. Must I give up potato-growing just because my ground is so exceedingly rich with stable manure? So far I have given you the dark side of the matter. Now for some daylight.

Whenever I plant potatoes after strawberries I get rid of the scab. Is it because we have planted them so late, or because of a heavy growth of foliage on the strawberry-plants? Just at this crisis I got hold of the *Ohio Farmer* for Oct. 14. The very first page of that paper was worth a dollar to me. Here is what I found and devoured so greedily, from the pen of our good friend Alva Agee:

> It is the rule, however, rather than the exception, that our scientific authorities in agriculture can help us plain farmers to get at the needed facts, no matter what the local conditions may be. I think that I have a fair illustration of this in one field to-day. Within the last five years two green manurial crops have been plowed under in this field, and two matured crops of cow-peas. The soil is in much better mechanical condition, and more fertile. But the agricultural chemists say that a green crop, plowed under in warm weather, makes a soil acid, and I find what is, perhaps, proof of a little too much acidity now, by the presence of a sprinkling of sorrel over most the field in the young clover. The soil is in productive condition, and there has never been sorrel to a noticeable extent in this field; but there it is now, and fairly attributable, probably, to the treatment the field has received.
>
> I have another proof that this late plowing-under of rye, or other green stuff, makes the soil acid. We know that potato scab does not thrive in an acid soil. It spreads where stable manure or lime is used. I have a two-acre lot near the barn that was heavily manured in the past, and has probably grown eight potato crops in the last twelve years. Wheat has too soft straw on it, and clover gets killed under the down wheat; so potatoes seemed a necessity. Three years ago the scab had finally become so bad in the soil that the field was unfit for the crop.
>
> A friend recommended plowing under rye to kill the scab germs in the soil, and the result was a fairly clean crop of tubers. Rye was again sown the next fall, and plowed under a little late in the spring. The crop showed that the soil was being cleansed of this disease; and Director Flagg, of the Rhode Island station, says that such results are likely due to the acid condition of the soil produced by the rye. I do not say that a green crop, plowed under late, will always kill scab, as such a crop does not always increase sourness of land perceptibly; but I do believe

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* Please bear in mind, dear friends, that a religion that costs us nothing, no self-sacrifice or hardship, is good for nothing comparatively. Jesus said, "He that taketh not his cross and followeth after me, is not worthy of me." So do not be troubled or worried even if it does cost you *hard money* right out to remember the sabbath day to keep it holy.

* The other part, where the sulphur was applied, gave potatoes comparatively free from scab. The next year my crop of chess was on this same ground; and the potatoes were, as I state further along, free from scab. But this, as you will observe, does not score any thing positively in favor of the sulphur application.

that we shall find such means the most effectual one for fighting this disease when it is fixed in the soil. The disease is widespread, and I noticed in the Pittsburg market this season that many shipments were almost unmarketable on account of it. Some souring of the soil is the rational remedy, and this can be secured by the use of rye without seriously diminishing the yield of the potatoes; and in my own case I am sure that the rye sod always increases the crop of potatoes very materially, being the best fertilizer one can get in a winter-catch crop.

Do you see the point, friends? Now turn to page 502 of GLEANINGS for July last, and see what I said about my winter oats that turned to chess (?). I told you in conclusion that the chess was promptly plowed under while in full bloom, June 18, and the ground planted to Freeman and Thoroughbred potatoes. I do not know just when those potatoes were put in, but I think it was toward the last week in June. Had it not been for our severe fall drouth I should have had a good yield of potatoes—yes, a *big* yield. As it was, I had a fair yield for the season; and the happiest part of it is, there was scarcely a scabby potato. In fact, the Freemans were just as nice as Terry's, and some of them weighed a pound.

Now, my understanding of the matter is that planting late has very much to do with avoiding scab. But if we plant late we should turn under some sort of green crop. Now, then, has anybody succeeded in avoiding scab by turning under a green crop *early?* But, by the way, you can not get any green crop to turn under, *very* early—that is, no rank green crop. We turned under some crimson clover rather early last spring; but, as I have told you, that did not help the scab at all.

The next point is, can we avoid the scab by planting about the first of July, or later, even if we do *not* turn under any green crop? Suppose you try extra early potatoes, and dig them and sell them the first of July. If you plant more potatoes on the same ground, will the last ones be freer from scab, when the first ones are badly scabby? I have a partial answer to this question from a neighbor. He planted half of a field to Early Ohio, very early; but something hindered, and it was very late before he put in the rest. The first planted were so scabby that they were hardly worth digging. The last (same seed, same ground, no difference except in time of planting) were the finest potatoes he ever grew—in fact, he took them to the fair, and secured the first premium. In this case the time of planting seems to be the only reason for difference. I do not know whether the weeds got up so high he plowed them under at the second planting or not.

Just one thing more: Can't some of our fertilizer-men give us a fertilizer that will make the ground "sour," so as to kill the scab fungus? I should be glad to get the experience of others on this same point.

HOW TO SUPPORT A FAMILY ON A QUARTER OF AN ACRE.

I propose to give you a brief outline of my experience with glass and cold-frames, as my perseverance, after failures, is partly due to my reading "High-pressure Gardening on One-fourth Acre" in your "Tomato Culture."

I commenced four years ago with 14 sash, five miles in the country; raised plants for my own use, and sold six or eight sash of lettuce and radishes, with a determination to get closer to market. Second year, 35 sash, one acre bottom land inside of corporation of town of 8000 inhabitants; cash rent of land $275. I made enough to pay rent and expenses; failed to make more, by planting wrong kind of vegetables on high-priced land. Third year, 135 sash, same land and rent; did well in winter, and good prospects for the summer, but was flooded by high water in the middle of May, and again Sept. 1; back-water 5 ft. deep each time, and covered every thing with mud. Result, I made enough before flood to pay rent, and afterward did not make expenses, due to second flood. Fourth year, 235 sash on a lot 80 x 100 ft.; rent nothing, as lot goes with house I live in. Result of sales from this lot, vegetable-plants, $125; lettuce, radishes, beets, spinach, and parsley, $600. Sales of celery from July 10th to Oct. 15th, $80. Celery on hand at present, 12,000 plants—which I am retailing from 60 cts. to $1.20 per dozen plants—fully two-thirds of it bringing 90 cts. per dozen plants, which makes my lot of less than one-fourth acre run between $1500 and $2000, which demonstrates that a family can live on one-fourth acre.

Nov. 1 will enter my fifth year in gardening with 335 sash; and as I empty each bed of celery (the celery is right in the cold-frame) I fill it with lettuce. This is my first year with celery, as I have mostly raised lettuce.

The first year I planted 6 sash of lettuce, and sold most of it. The second year I planted 20 sash of lettuce; sold about two-thirds of it, this market not being used to early lettuce. Third year I planted 60 sash to lettuce; sold all out by April 15th, right when there was the best demand. The fourth year I sold 180 sash of lettuce from December to June. All this lettuce I have retailed in this town, did all the work in garden myself, averaging about five hours each day.

J. B. LACKEY.

Staunton, Va., Oct. 16.

My good friend, I am exceedingly obliged to you for the many practical points you give. First, do not be discouraged if you do not make a success of it at once. Second, beware of localities subject to overflow. Third, have a home of your own, and do your farming in your own dooryard instead of renting high-priced land. Fourth, it pays to be as close to your customers as you can get, even though the ground is high-priced. Your last record is equal to almost any thing I have seen. It seems to me you paid a pretty big price for rent; but circumstances might, of course, warrant such an outlay. But the worst part of it is, you would have to put on fertilizers, and do work that almost doubles the value of the land, for which you would get nothing. Have a piece of ground of your own as soon as you can; and then not only make every foot of it grow something, but *every square inch.*

A SUGGESTION IN REGARD TO SETTING STRAWBERRY-PLANTS.

Mr. A. I. Root:—I am very little of a farmer or bee-keeper—am simply an old surveyor and civil engineer, who, being too old for active work, has settled down in the country, like a stick of drift-wood, long carried and tossed on the flood, lodging at last on the bank, where it quietly rests until the dust returns to the earth as it was, and the spirit returns to God who gave it.

I have been a subscriber to GLEANINGS for many years, not so much for the bee-keeping news it contains (I read and am instructed in all) as for the general spirit which pervades it and which harmonizes with my own feelings; and it often makes me long for a good quiet talk with you. We both hate humbugs, and the world is full of deceit, sham, and adulterations. The mass of the people like to be deceived, and honor those most who can and will deceive them, because the mass of the people love deceit; they "love darkness rather than light."

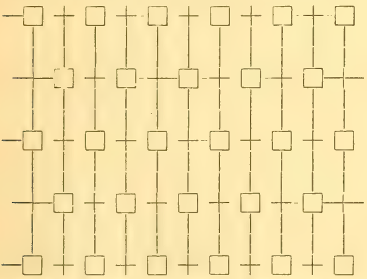
As a rule, the part of GLEANINGS I like best begins with Notes of Travel and ends with High-pressure Gardening. I like to look over your price lists, for they give an idea of what things ought to cost. Here, merchants generally charge "all the traffic will bear." On many seeds I can buy in pound lots from you, pay postage, and have the seeds delivered at my postoffice, from 10 to 25 per cent cheaper than I can buy in seedstores in Portland, Oregon, in 10 and 50 pound lots. They simply scoop the seeds out of a sack or bin, and weigh them out to me, and yet some advertise that they get their seeds in carload lots. In bee-fixtures they used to charge just a *little* less than they could be obtained from you by freight in 100-pound lots. I am glad to say prices are coming nearer to the eastern level, and I think that you and others like you are to be thanked for it.

I like your High-pressure Gardening very much, and get many ideas and much encouragement from it. You have such an enthusiastic way of talking about things that it makes one feel like trying it for himself.

In Sept. 15th GLEANINGS, page 681, you tell how to set plants so that the lines joining the plants will form equilateral triangles, and each plant be equally distant from the six others nearest to it. I think I can give a more rapid way of doing this work, that, with care, will give just about as accurate results.

Rows are first to be marked out just as you described, say from east to west. Now, given the distance the plants are to be from each other, to find the distance the east and west rows should be apart. This can be done by multiplying the distance between plants by one-half of the square root of 3, which is 0.866; or, if preferred, multiply by 26 and divide by 30, which is nearer the true distance than you can mark the rows. Now mark off the ground with north and south rows, just half as far apart as the plants are to be from each other. Then set plants in the first east and west row, at *every other cross mark*. Then do the same with the second row, setting the plants in the cross-marks of the north and south lines that were *skipped* in the first row.

Calling the distance between plants 24 inches, 24 x .866 or 24x$\frac{26}{30}$ equals 21 inches nearly. See sketch below.



HOW TO LAY OUT THE GROUND WITH A COMMON MARKER SO AS TO BRING YOUR STRAWBERRY-PLANTS LIKE THE CELLS OF A HONEY-COMB.

This method can be applied to trees as well as plants, on large fields as well as small plats.

I think of trying a half-acre or more of mangels by this method next spring, setting plants 18 inches from each other, as I find they stand transplanting well. Transplanting is much slower work than drilling, but will save much time in weeding and thinning. If plants are set 18 inches apart, there will be a little over 22,000 plants per acre. I have had mangels that weighed over 20 pounds. Now let Huber figure how many tons per acre 20-pound mangels would give, and see if that is not "*high-pressure*" *gardening*.

Corbett, Ore., Oct. 5. JOHN A. HURLBURT.

Friend H., we are much obliged to you, and we are very glad to find a civil engineer who is turning his attention to high-pressure gardening. No wonder you gave us so short and accurate a method of arranging plants hexagonally. To do this we really ought to have two markers—one to make marks one foot apart, and the other to make them nearly 21 inches. With a horse, and a marker say six or eight feet wide, ground could be marked very rapidly. For small areas, of course hand markers made narrower accordingly would be more convenient. I hardly need explain to our readers that the squares are to represent strawberry-plants. Thanks for your kind words for our efforts in the way of cutting off the profits of middlemen, and getting seeds directly from the grower to the planter by the shortest cut. This season our cucumber and melon seeds are all grown especially for our trade by a seed-grower who is also a bee-keeper. If I were to tell you what he gets from seed-growers for his seeds you would not wonder we are able to offer many of them at half the prices made by many of the catalog men.

We copy the following from the *Ohio Farmer* for Oct. 14:

A BOLD SWINDLER.

In our news items last week we referred to the arrest of Carl B. Cline at Columbus, O., for using the U. S. mails for swindling purposes. The Columbus papers give us full particulars. At the bank he was known as Cline; at Livingston's seedstore he was known as Mr. Craft. He bought most of his "sample" seed wheat at Livingston's. At his apartments on Naghten St. he was known as "Mr. Ferrington." About Aug. 1st he advertised "Early Surprise" wheat in the agricultural columns of religious papers from Maine to California. He also advertised in some agricultural papers. He said he raised 463 bushels of this wheat from 10 acres; that it had such stiff straw that it could not be blown or beaten down by storms, etc., and offered to send sample by mail for three two-cent stamps. The stamps poured in from all over the country, and he sent samples of wheat purchased at Livingston's, accompanied with a circular offering to ship one bushel for $1.50, five bushels for $1.35 a bushel, and ten bushels or upward for $1.25 a bushel. Orders poured in at the rate of $50 to $100 a day; and the officers who arrested him Oct. 1st estimate that he had received fully $2000. When complaints began to come in he bought some rejected wheat and filled part of the orders, but most of them were not filled at all. His race was short.

Now, friends, where is the trouble? Who is to blame? The trouble is here: This man, when he advertised, was a new man, unknown to anybody. Before sending him money, the farmer should have gone to the bank and had them look the advertiser up; or, if that is not convenient, write to the editor of the paper that published the advertisement, and ask him to find out whether or not the advertiser is responsible. This can be done in a minute's time by anybody who has access to Bradstreet or Dun. If you can not find his name, do not send him any money. Beware especially of anybody who claims to have something greatly superior in a great staple like wheat. Our experiment stations are watching every thing of this sort with great interest. An investigation in Columbus would have brought to light at once the facts given above. And now I hope none of the agricultural papers will feel hurt when I suggest that no advertisement should be received from *anybody* until he gives satisfactory reference, or is found quoted by Dun or Bradstreet. If this were followed up, such fellows as "Cline," "Craft," and "Ferrington" would be brought to a standstill at the outset. They could never get into any agricultural paper, and, in fact, I should like to say in *any other* paper until given some reasonable proof that they were straight square men, and not somebody sailing under an alias or false colors of any sort.

KIND WORDS FROM OUR CUSTOMERS.

The queen you shipped Sept. 13 came in splendid condition, and I must say I was very well pleased with her—7 days on road. There was not one dead bee in the lot NEWTON SHELDON.
Big Pine, Cal., Sept. 29.

The sections you sent me have come to hand, and they are the nicest I ever had. They are square when put together, and the dovetailed corners fit nicely. I am surprised at the low freight rates from Medina. I don't think I shall ever try to keep bees without GLEANINGS. W. H. PARKER.
New Castle, Ala., June 29.

Please accept my sincere thanks for your very kind note telling me how best to treat the "Darling" strawberry-plant recently received from your house. It is the very handsomest plant I have ever seen. I did not need to shade or coddle it in the least. When I took it out of the box it was as fresh as when you put it in. It has already made two new leaves and a runner, which last I promptly clipped. My pit is an excellent one, well drained, with a southern exposure, so that I am expecting the plant to start into an early and vigorous growth next spring. This plant is so handsome and well established that I feel sure it must be greatly superior to any thing that you will send out in quantities, nevertheless I shall send you an order for some of your pet Jessies in the spring. By that time I shall have mastered the A B C so thoroughly as to be able to treat them intelligently.
Richmond, Ky., Oct. 4. MISS MARY F. CROOKE.

Gleanings at Reduced Rates.

With a view to encouraging membership to all kinds of bee-keepers' associations whatsoever, local or otherwise, we have decided to offer GLEANINGS at 75 cts. per name to members of such organizations. Old or new subscribers may take advantage of this offer; but in the case of the old, all back subscriptions must be paid up before the 75-cent rate for a year will be allowed; otherwise only nine months will be credited.

We must either require all subscriptions at this reduced rate to come through the secretary, or we must have evidence of some sort that you belong to some bee-keepers' society. Simply a line from the secretary, stating that you are a member in regular standing, will suffice. At your next annual meeting, bear this in mind; and if you wish to become a subscriber to this journal, hand 75 cts. to your secretary, and when that amount is received by us your name will be placed on our subscription list for 12 months.

If you do not now belong to any association, send $1.75 to us or to Secretary Dr. A. B. Mason, of the United States Bee-keepers' Union, at Toledo, Station B. This will entitle you to a year's membership and protection in the Union, and one year's subscription to this journal.

The A. I. Root Company,
Medina, Ohio.

Queens, Untested queens, 50c each; tested, 75c; Breeders, $2. Either leather or golden. My golden breeders breed all 5-banded bees.
W. H. LAWS, - Lavaca, Ark.

Dovetailed Hives,
Sections, Extractors, Smokers, and every thing a bee-keeper wants. Honest goods at close honest prices. 60-page catalog free.
J. M. JENKINS, Wetumpka, Ala.

No cheap Queens to sell; but the best.
Golden 5 band, or 3 band from imported mother. Untested, 75 cts.; tested, $1.00.
L. BEAUCHAMP, Box 613, San Antonio, Texas.

REDUCED PRICES.
Warranted Italian queens, 60c each; 4 for $2.00. Select warranted, 75c each; 3 for $2.00. Untested, 50c each; 5 or more, 40c each. These prices are good for the balance of this season only. Safe arrival and satisfaction guaranteed.
J. P. MOORE, Morgan, Pendleton Co., Ky.

CHAS. ISRAEL & BROS.,
486, 488 & 490 Canal St., Corner Watts St., N. Y.
Honey and Beeswax.
Liberal Advances Made on Consignments.
Wholesale Dealers and Commission Merchants.
Established 1875.

WATCH POUDER'S AD

SEE THAT WINK?
BEE SUPPLIES.
Root's Goods at Root's Prices.
Pouder's Honey-Jars and every thing used by bee-keepers. Low freight rates; prompt service. Catalog free.
WALTER S. POUDER,
162 Mass Ave., Indianapolis, Ind.

MUTH'S HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
ROOT'S GOODS AT ROOT'S PRICES,
Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10 cts. in stamps. Apply to
CHAS F. MUTH & SON, Cincinnati, O.

HONEY-JARS.
1-lb. with Corks, $4.50 per Gr.
Labels for same, 60c per gross.
Cartons, Shipping-cases,
and every thing in the Apiarian line.
Catalog free.
Apiary, Glen Cove, L. I.
I. J. STRINGHAM, 105 Park Pl., N. Y. City.

In writing advertisers, mention GLEANINGS.

CASH FOR BEESWAX.
We pay 23c per lb. cash, or 25c in trade, for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 30c for *best selected wax*. *Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by *express*.
THE A. I. ROOT COMPANY,

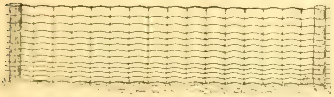
THE S. & H. CO.
desire to enter into correspondence with all contemplating the purchase of anything in their line. They think they have one of the most complete assortments of strong, smooth, healthy,

FRUIT AND ORNAMENTAL TREES

Small Fruits, Vines, Shrubs, Roses, Bulbs, Hardy Herbaceous Plants Greenhouse Stock, Etc., on the market and invite all buyers to come and see for themselves. They are to be found at the old stand where they have labored faithfully for the past 43 years to build up a reputable business. Catalogues free.
Address **THE STORRS & HARRISON CO., Box 8 Painesville, O.**

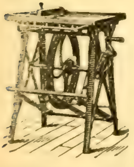
TREES AT VERY LOW PRICES. Write now for new fall catalog. It's free and will tell you about the stock we grow and our prices.
ESTABLISHED 1869. 150 ACRES.
THE GEORGE A. SWEET NURSERY CO.,
BOX 1837. DANSVILLE, N. Y.

500 Young Ferrets now ready to ship. Send for free price list to
N. A KNAPP,
Rochester, – Ohio.



The Lion and the Lamb.
It matters little what kind of animals you confine in adjacent lots, provided the division fence is strictly "stock proof." Here surely, "the best is the cheapest."
PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

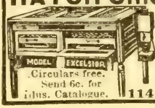
One Man with the
UNION COMBINATION SAW
Can do the work of four men using hand tools in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging Up, Jointing Stuff, etc. Full line of Foot and Hand Power Machinery. *Sold on trial. Catalog free.* 1-24ei
Seneca Falls Mfg. Co.,
44 Water St., Seneca Falls, N. Y.



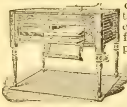
Read what J. I. PARENT, of Charlton, N. Y., says — "We cut with one of your combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalog and price list free. Address W. F. & JOHN BARNES, 545, Ruby Street, Rockford, Ill.
When more convenient, orders for Barnes' Foot-power Machinery may be sent to
THE A. I. ROOT CO., Medina, O.

PATENTS PROCURED PROMPTLY
AT REASONABLE RATES
By J. A. OSBORNE & CO.,
PATENT LAWYERS,
579 The Arcade, CLEVELAND, O.
CALL OR WRITE. ADVICE FREE.

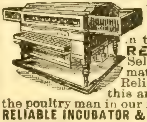
FARM BEE-KEEPING.
The only bee-paper in the United States edited exclusively in the interest of the farmer bee-keeper and the beginner is THE BUSY BEE, published by
Emerson T. Abbott, St. Joseph, Mo.
Write for *free sample copy now.*



HATCH Chickens BY STEAM–
With the **MODEL**
EXCELSIOR Incubator
Simple. Perfect, Self-Regulating. Thousands in successful operation. **Lowest priced first-class Hatcher made.**
GEO. H. STAHL.
114 to 122 S. 6th St. Quincy, Ill.
Circulars free. Send 6c. for illus. Catalogue.

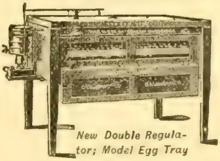


THE SUCCESSFUL INCUBATOR
is the standard machine for hatching strong, healthy chicks. Self-regulating, patent turning trays, drying room for chicks, non-explosive lamp—just a few of its good points. Sold under positive guarantee to work perfectly. Beautifully made and durable. Our 128 page catalogue describes them fully; tells many things about poultry raising you should know. Mailed for 6 cts.
DES MOINES INC. CO. Box 503 DES MOINES, IA.



NEVER BEATEN
in all the many shows in which it has participated, there must be something in the superiority claims of the
RELIABLE INCUBATOR
Self regulating, entirely automatic, you put in the eggs, the Reliable does the rest. All about this and many things of value to the poultry man in our new book. Send 10 cts. for it.
RELIABLE INCUBATOR & BROODER CO., QUINCY, ILLS

Do You Want An Incubator?
An Honest Machine, Honestly Built,
Sold Under a Positive Guarantee.



New Double Regulator; Model Egg Tray
"NEW AMERICAN."
Want Our Catalogue?
It's a pretty book of 68 pages, finely illustrated; worth dollars to every poultryman. A 2c stamp gets it.
GEO. J. NISSLY, SALINE, MICH.

SPECIAL NOTICES FROM BUSINESS MANAGER

WINDOW GLASS ADVANCING.

With returning prosperity throughout the country generally, the prices of many commodities are advancing. Window glass is affected by the advancing market to a much greater degree than most things. The shipping-case glass listed in our catalog we can no longer sell at $2.50 per box of 50 feet; but from now on the price will be $3.00 a box till further notice. This would necessitate a change in the price of shipping-cases complete with glass if you did not do something else to overcome it. We have discovered that large glass-jobbers accumulate a great many two-inch strips, especially of double-thick glass, and these we are able to buy at a special price. By grooving the glass strips with a wide groove, and the right size to take two-inch glass, we can furnish shipping-cases complete at the regular price. For cases with three-inch glass the price will be 25 cts. per 100 extra on two-row cases, 12 and 16 lb.; 50 cts. per 100 extra on three-row cases, 12-lb.; $1.00 per 100 extra on 24-lb. cases. The double glass in strips 2x9, 2x13½, 2x17¾, 50 feet to the box, we can supply at $2.00 per box.

WIRE NETTING.

To reduce present stock of wire netting we offer 2-in. No. 20 and 2-in. No. 19 wire netting from Medina at the following special prices for the various widths:

12	in. wide,	No. 20,	$ .60	a roll;	No. 19,	$ .65	a roll.
18	"	"	.90	"	"	1.00	"
24	"	"	1.20	"	"	1.30	"
30	"	"	1.50	"	"	1.65	"
36	"	"	1.80	"	"	2.00	"
48	"	"	2.40	"	"	2.60	"
60	"	"	3.00	"	"	3.30	"
72	"	"	3.60	"	"	4.00	"

Each roll at above price is to be 150 feet long. We have of some of the widths a few rolls that are short length a few feet on each. These we would put in at the same rate while they last. Notice that these prices are a reduction of over ten per cent from former rates, and are made only on orders filled from Medina stock while it lasts. The same discounts for quantity will apply; namely, 5 per cent for five rolls, or 10 per cent for 10 rolls or more. We have some 150 rolls in stock of all widths, both sizes. Send on your orders, as these prices can not last long, and are lower than you can buy the same goods for elsewhere.

HONEY MARKET.

Having had numerous calls for extracted honey in glass jars we have decided to supply it in this form. We have chosen the square flint jars, which, with label on top and neck of jars, form a very attractive as well as convenient package. These are put up in small boxes with corrugated-paper packing to secure safe carriage. We are using the California white sage for this trade, as it does not candy; we offer it as follows: One-pound jar, one dozen in a case, per case, $1.80; half-pound jar, two dozen in a case, per case, $2.40; five ounce jar, two dozen in a case, per case, $1.70. We also can supply this honey in 60-pound cans, 2 cans in a case, at 6½ cts. per lb. Lots of five cases at 6 cts. per lb. Clover and basswood in cans at same prices, when we have it.

We also have on hand comb honey which we offer in lots of 100 lbs. or more as follows: Fancy white, per pound, 13c; A No. 1 white, 12c; No. 2 white, 11c; fancy amber, 11c; A No. 1 amber, 10c; No. 2 amber, 9c; fancy buckwheat, 10c; A No. 1 buckwheat, 9c. Lots of 500 lbs. shipped direct from producer at 1c per pound less.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

RELIGIOUS PAPERS AND BOGUS ADVERTISEMENTS.

On page 789 we are told that the new wheat was advertised principally in *religious* papers. What does this mean? I am afraid it means swindlers have discovered religious papers are a better field for swindles than agricultural papers or papers of any other sort. In one sense this is a compliment to Christian periodicals; but if this thing keeps on—if religious papers do not soon learn that it behooves them to take as great care to keep out frauds as agricultural papers do, the great world at large will begin to lose faith in the very papers that should *above all others* teach honesty and truth even in their advertising columns. Permit me to say here I have been greatly rejoiced to find the *Golden Rule* has not contained an advertisement of Electropoise for several months. If this is to continue, I can honestly recommend the exponent of the Endeavor Society as one of the best papers in the whole wide world to put into the family.

PRICES OF SEED POTATOES.

I have been carefully scanning our agricultural papers, especially the advertising columns, and I find only one man who advertises seed potatoes for less than we do, and this is only a little less. He offers Sir Williams for 90 cts. a bushel, while our price is $1.00 In barrel lots, however, our price is a little *less* than 90 cts. Notwithstanding, to be consistent we will sell a single bushel, and furnish sack to hold them, for 90 cts.; and if you hesitate about sending your orders to me because some reliable man offers the same potatoes cheaper, please let me see his advertisement and I will try to duplicate his prices. I do not want to undersell my neighbors in the same business, neither do I want my prices to be higher than theirs. Please bear in mind that my potatoes have been grown under my own personal care, and the greater part of them have been dug and picked up and assorted under my personal supervision. For immediate orders we can furnish you some of the finest State of Maine potatoes I ever saw, for 65 cts. per bushel, including sack to ship them in. If to go long distances, and you order three or more bushels, we will put them in a barrel at the same price.

THE BOVEE EARLY POTATO.

We have toward 50 bushels of very handsome potatoes of this new extra-early variety. At the present writing we can make the following prices: 1 lb., 30 cts.; 3 lbs., 75 cts., when sent by mail; if sent by freight or express, ½ peck, 50 cts; peck, 80 cts.; half bushel, $1.50; bushel, $2.25; barrel of 11 pecks, $5.00.

In regard to this potato, our Ohio Experiment Station last year reported a yield of over 500 bushels per acre, and it was tried with the Early Harvest, Noither, Thoroughbred, Early Ohio, and Rose, and went far ahead of any of them. We have not as yet received a report from it this year, but here is what they said about it last year:

> "It seems to be quite as early as Early Ohio, and there is no doubt about its being more prolific. We regard it as very promising, and we think we have had a chance to test it quite thoroughly, as we had three plantings. It has uniformly given good results, hence we confidently recommend it."

Just as we go to press we find the following in a letter from Prof. W. J. Green:

> The Ohio Agricultural Experiment Station,
> Wooster, Ohio, Oct. 25, 1897.
>
> *Dear Sir:*—Our late-planted crop of Bovee potatoes has turned out well, and the tubers are smooth.
>
> Yours truly, W. J. GREEN.

Permit me to add that we have purchased the crop grown by the Experiment Station.

Here is also something just at hand from C. N. Flansburgh, Leslie. Mich:

> The general yield in this section is light; but we shall have nearly 200 bushels of the Bovee from one barrel of seed. Yours very truly,
>
> C. N. FLANSBURGH.

Perhaps you may know that Peter Henderson gave it a big boom during the past season. We made a test of it on our own grounds, but did not get it planted at the time of our other extra-early potatoes, so we could not give it a fair *comparative* test. If anybody else offers it at a less price than that given above we will try to make ours correspond.

WINTER CASES FOR PENNSYLVANIA!
Root's goods at Root's prices. Send for catalogue.
PROTHERO & ARNOLD, Dubois, Pa.

FOR SALE.—Green-bone cutter. Good order; can be used with power; bargain.
Box 57, Medina, Ohio.

KIND WORDS FROM OUR CUSTOMERS.

The Ajax wheel came Monday, the 11th, all right. It is a fine-looking wheel. F. H. SACKETT.
Piccolo, O., Oct. 13.

I send you $1.00, and will send more soon; but don't stop that paper, as I can not do without it. I have been in a tight row financially, but must have GLEANINGS. It is the best religious and agricultural paper that comes. Put on the white-rose button, Bro. Root.
Newark, O. H. HOLLER.

STRAWBERRIES AND RASPBERRIES — SECOND CROP.

We have picked a second crop of strawberries on old beds for two months, and the last month has been very dry. We are also picking quite a second crop of Cuthbert raspberries. Nearly every plant has a bunch of blossoms and berries. This is the first time I ever heard of Cuthbert bearing a fall crop.
Claremont, Va., Oct. 11. A. F. AMES.

QUEEN TO AUSTRALIA.

I have received the two Carniolan queens—one dead and one alive. The cage with live queen contained two live workers only, and *all* the honey had been consumed, and about half the candy. In the other cage a little honey still remained, and about three-fourths of the candy. Bees are doing well.
Goodna, Queensland. H. L. JONES.

[It would seem from this that honey was the important part of the food. There can be no doubt of its value in queen-cages designed for long distances. —ED.]

CLEATED SEPARATORS AND NO-BEE-WAY SECTIONS WANTED.

If you have not shipped goods ordered on the 13th inst., please send the cleated separators and the "no-bee-way sections" for the Danzy hive, if you have them. If not in stock, ship the rest of the order and I will wait till you have some of these. I have just read the editorial on page 744, and it is the same idea I have had for some time. In fact, I made and used a few last year that pleased me wonderfully. I also tried holes in the separators, which was an advantage.
Bristol, Tenn. M. D. ANDES.

OUR TRANSPLANTING-MACHINE.—SEE PAGE 462.

The strawberry-transplanting machine I bought of you a few weeks ago is an exceedingly useful tool, almost invaluable. I have used it to set out a thousand plants. I planted some potted plants at the same time, and, so far as I can see now, those moved by the transplanter are doing just as well as the others. It is also a great help in setting out *potted plants.* I stretch my line, put marks on it just the distance apart I want to plant, walk along, make holes with the planter, and some one follows and drops the plants in, fills with a little earth mixed with bonemeal, and the job is done to perfection. As I can irrigate my patch by simply turning water on it from a creek higher up, I have been able to plant right in the midst of this severe drouth. C. E. MOODY.
Asheville, N. C., Oct. 7.

AN EXCEEDINGLY "KIND WORD" AND A BRIGHT MORAL, BESIDES.

A few days ago I found the following on my desk:

Mr. A. I. Root:—Is it too late to sow spinach in this latitude? If not, I should like you to send me enough seed (spinach) *to drill* in one acre. Please state distance apart drills should be, and care and culture necessary for growth of this crop (very briefly). I have a Planet Jr. drill bought of you. I will remit for seed when received. Do not send if too late to sow. The land I think of sowing has been cultivated *sixteen* times this season. No frost here to date.
Hickman, Ky., Oct. 18. D. W. DICKINSON.

We promptly sent our friend 10 lbs. of seed, with the following directions:

It would be a little late in our locality for sowing spinach, but we should think it would be about right where you live. The main thing is to have the ground real rich. You do not say how much it has been manured. On the whole we have concluded to send the seed along. The extra cultivation is just the thing. If it does not get large enough before freezing weather it will come up all right next spring—that is, if your ground is underdrained or has sufficient sand or gravel so the plants will not heave out. One ounce should make about 150 feet of drill, and I would have the rows about a foot apart. If you wish to cultivate it with a horse it should be between two and two and a half feet. Ten pounds will be plenty of seed, and this is the amount we send you. You do not tell us how to send it; but as it will go almost as cheap by express, and much quicker, we send it in that way to Hickman, Ky. Spinach does very well sown at the same time you sow wheat; and I think very likely they are sowing wheat in your locality now, Oct. 20, as we sowed some last week.

Of course, I supposed that would end the matter; but imagine my surprise when I received the following:

Dear Friend and Bro. in Christ:—The longer I know you, the more I find in you to admire and esteem; and I do believe you are the "one in ten thousand." May God ever bless and prosper you is the prayer of the writer.

Some days ago I sent you an order for spinach seed. I knew nothing about the cost of seed or cultivation; in fact, I was utterly ignorant about the plant. Well, after the letter was mailed I began to think, "I've done a reckless thing. I don't know whether the seed costs 5 cts. per lb. or $5.00;" and then I consoled myself by the thought, "*A. I. R. is sure to do the right thing.*" I received the bill Saturday, and was astonished at the paltry price, 10 cts. per lb., and *25 cts. to my credit.* D. W. DICKINSON.
Hickman, Ky., Oct. 25.

The "bright moral" I gather from this simple transaction is this: This world is not a bad one to live in after all. It is not a very hard task to please the average of humanity; and the most important thing is to conduct all your business having in view first and foremost helping humanity along. Do not let self or selfish interests warp or twist your judgment. In the first place, our friend seems to have forgotten that we placed to his credit $1.25 in a potato deal last spring. If I am correct, he sent his money in accordance with our printed prices; but before the order reached us there had been a decline. Again, when he stated his wishes in regard to the spinach (something he had never bought), without thinking any thing about it I advised only a moderate investment in the seed, etc. There are good nice kind people in this world; and when you are tempted to think otherwise, remember it is Satan himself who has gotten hold of you.

Two Bee Papers for the Price of One.

To all new subscribers, and also to those who renew before their subscriptions expire, and inclose $1.00, we will send the *Busy Bee*, a monthly bee-paper, in addition, free.

THE A. I. ROOT CO., Medina, O.

Wants and Exchange Department.

WHAT will you offer for one b-flat cornet and case, also one e-flat alto, good instruments, practically new? Address Box 321, Clifton, New York.

WANTED.—To exchange 1 "Planet Jr." double-wheel hoe complete, used only couple of times, for a good coon dog. I. S. TILT, Box 73, Filion, Mich.

WANTED.—To exchange 140 colonies of bees, with all fixtures belonging to a first-class apiary, for good horses and mules.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange 65 volumes Scientific American, volumes 1, 2, 7, 8, 9, 15 to 33 inclusive, 36 to 77 inclusive, unbound, good condition, for bicycle, view camera, firearms, or offers.
J. E. HAMMOND, Oxford, Mass.

WANTED.—For exchange, tandem and single bicycles, Marlin repeating rifle, 32 caliber. Wanted, Barnes saw. ROBERT B. GEDYE, La Salle, Ill.

Two Papers for the Price of One.

The **Farm Journal**, of Philadelphia, a monthly agricultural journal of 16 pages, sent **One Year Free** for one subscription to **Gleanings**, with $1.00, paid in advance, either new or renewal. In the case of a renewal, all arrears, if any, must be paid in addition to one year in advance.

The Farm Journal is now in its 20th volume, and takes the lead among all the *low-priced* agricultural journals of this country and of the world. It gives no chromos, puffs no swindles, inserts no humbug advertisements, lets other folks praise it, and makes good to subscribers any loss by advertisers who prove to be swindlers. The editor was born on a farm and reared at the plow-handles, and the contributors are practical men and women.

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A sample copy will be mailed FREE by addressing AMERICAN AGRICULTURIST, Columbus, O., or New York, N. Y.

TAKEN separately these two papers cost $2.00, consequently every subscriber under this offer will get

$2.00 IN VALUE FOR $1.25.

Premium Books. For 10 cents extra, as postage, you can have your choice of any of the following standard books FREE: "Profits in Poultry," "Farm Appliances," or "Farmer's Almanac" (ready December 15). Send your subscriptions direct to

THE A. I. ROOT CO., Medina, Ohio.

Supplement to Gleanings in Bee Culture, November 15, 1897.

PREMIUM LIST.

Valuable Inducements to Secure Subscriptions to GLEANINGS IN BEE CULTURE.

New Subscriptions for 1898 Received Before the End of This Year will Receive the Remaining Issues of This Year Free.

Premium Rules.

Please Read These Rules Carefully and Thus Avoid Misunderstandings.

We believe most of the readers of GLEANINGS appreciate it enough to continue with us without the extra inducement of premiums. These are offered with a view of increasing our number of readers by the addition of new subscribers. The premiums are intended for those who, by personal effort, secure the subscribers. These persons are almost always those who already read GLEANINGS, and know what it is. We are glad, therefore, to pay you well for your trouble. *No premiums will be given to newsdealers or subscription agents.* 1. Both renewals and new names count toward securing premiums. A transfer of subscription from one member of a family to another is not a new name, as it does not make any addition to our list. Note also exceptions under different premiums.

2. No name will be counted for premiums unless it is accompanied by $1.00; and in case of renewals all arrearages, if any, must be paid up, and $1.00 sent for a year in advance—the advance subscription only, counting for a premium. Remember that you can not claim more than one premium on each subscription. This rule applies to all premiums offered in other issues besides this premium list. Inclose postage if premium is ordered by mail.

3. You can close your list of names at any time, and call for the premiums due; or you can add to the list of names. But –

4. Send along the names as fast as gathered, so that the subscribers may begin to receive the journal at once. No subscription should be taken for less than $1.00 per annum.

☞ Mark every name or list of names, "**For Premiums,**" if so intended, and we will credit them to the sender on our premium-record.

5. **Be sure to give the Name, Postoffice, County, and State of each subscriber and of yourself.**

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8. **To Foreign Readers.** To all foreign countries, 48 cents must accompany subscription, for postage.

9. **How to Send Money.**—1. Tell how much you inclose and of what it consists. 2. Money may be sent without risk of loss in three ways:

By bank draft on any responsible city bank.

By express money order on any express company.

By postoffice money order.

If you send by any of the above methods, and your order should be lost, you can get a duplicate.

If there is no bank, express office, or money-order office near you, so that you can not use any of the above methods, you may send by registered letter, and we will be responsible; but if any of the methods first named are available, we will not be responsible for money sent in any other way. Do not send coin in letters; if you do, they are at your risk.

PREMIUMS IN CASH.

LIBERAL COMMISSIONS TO WIDE-AWAKE WORKERS.

Notwithstanding the very liberal offers we make in premiums in the following pages, there may be some who prefer a cash commission to any of the premiums offered. As we are desirous of increasing our list of subscribers to double the present number, if possible, we propose offering the following large cash commissions:

For *one* new subscription, sent with your own renewal, you may retain 35 cents, sending us $1.65. For *three* new subscriptions, with $3.00, you may have your own subscription advanced one year. For each additional new subscription you send you may retain 40 cents.

For each additional renewal which you obtain and send with yours, you may retain 20 cents provided all arrears, if any, on such subscriptions are paid in full, and the payment for a full year in advance is the only part from which you retain your commission. This will not apply to a person sending in his own renewal. Nor can you claim any other premium if you choose the cash commission.

If you wish to subscribe for more than one year in advance you may do so at the following rates:

One year, $1.00; two years, $1.75; three years, $2.50; four years, $3.00; five years, $3.50; 10 years, $6.00. In any case the name would count as one renewal in obtaining a premium.

A B C of Bee Culture.

It is hardly necessary to speak of the merits of this work, which, judged from its extensive sale, is the most widely read book on bee culture in the English language, and, for aught we know, in any language. The last edition completed 62,000 copies from the press during the last eighteen years since it was first printed. This last edition has been greatly improved. It is enlarged to 475 octavo pages, with over 300 illustrations, many of them full-page. Some of the latter embrace a view of the apiaries of some of the largest and most successful bee-men. In the back part of the work is a biographical department of sketches and half-tone portraits of the most successful American apiarists. The whole work is brimful of contagious enthusiasm, and the style simple and instructive. None of the matter pertaining to the apicultural part of the book is electrotyped, but all is kept in standing type, so that when any new thing of importance comes up it can be inserted in its proper place, and the old struck out. Its quick sales have warranted us in giving it frequent and thorough revisions. The present edition is greatly enlarged and improved, so that it is nearly twice the size of the one first issued; and no bee-keeper having one of the earliest copies can afford to be without this latest edition. The book has grown so large that it now takes 19 cents postage to mail it. We have not advanced our prices, however. Price $1.20 postpaid; $1 00 with other goods. GLEANINGS one year, clubbed with the A B C, postpaid for $2. Clubbed, postpaid, with a new subscription for $1.75. If you send two new subscriptions with your own renewal and $3.00, you may have the book postpaid; or if you send one new subscriber with your renewal and $2.50 you can have the book prepaid.

Our List of 10c Books.

Six of any of the following sent postpaid for one new subscriber and your own renewal with $2.00, or two sent postpaid for your own renewal with $1.00.

Peabody's Webster's Dictionary.

25,000 words and phrases, and illustrated with 250 engravings; cloth bound. This is the one we sold for years at 15 cents. We thought we had done something wonderful when we offered so large a dictionary for 15 cents, but we are now able to sell them for a dime. Just think of it! Postage extra 5c.

Poultry for Pleasure and Profit.

48 pages and 20 illustrations. A complete little book of instructions. It treats of the best varieties for pleasure and profit; how to house and yard; how to manage; how to feed; diseases, incubation, etc. It is a 25-cent book, but by getting 1000 of them we can sell them for 10 cents. Postage 1 cent.

The Horse and His Diseases.

By Dr. B. J. Kendall; 100 pages and many illustrations. Over 500,000 of these books have already been sold, because they are so popular and complete, for a small hand-book. It gives the symptoms of most diseases, and treatment for the same. This is another 25-cent book that we got down to a dime by taking 1000 of them. Postage 3 cents.

Silk and the Silkworm.

This is a complete work of instruction on silk culture, by Nellie Lincoln Rossiter, a practical silkculturist; 32 pages. Silk culture is the favorite pursuit of many ladies in our land; and all who are interested will find this little work very instructive. The price printed on it is 25 cents, but we sell them for 10 cents. Postage 1 cent.

New Testament, New Version.

434 pages, printed in nonpareil type. This should be in the possession of every student of the New Testament. Even if it does not come into common use, it is helpful to know what changes in translation the New Version gives. Postage 5 cents.

John Ploughman's Talks and Pictures.

By Charles Spurgeon; 125 pages, and a picture on almost every page. John Ploughman talks plainly, and makes a good point in every talk. It is by no means dry reading, either. Postage 3 cents.

Life and Adventures of Robinson Crusoe.

240 pages, paper covers. Until now 20 cents. Although they cost us more than 10 cents each, we offer them at that price. Five cents extra by mail. There are few books so universally read as this one, and there are many editions printed. At the price, this one is a bargain.

Practical Turkey-raising.

By Fanny Field, the most experienced turkey-raiser in America. This is a regular 25-cent pamphlet of thirty pages, giving the best information on this subject. Our price is only 10 cents. By mail 2 cents extra.

Injurious Insects of Michigan.

By Prof. A. J. Cook. This was a most valuable work in its time, but is now rather old. It sold for 25 cents. We will close out the few we have on hand at 10 cents each, postage 2 cents extra, and it is a bargain at this price; contains 48 pages the size of this, and 50 illustrations of insect pests.

Silo and Silage.

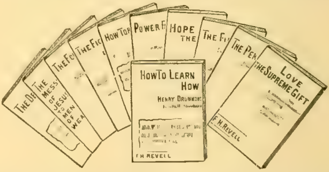
By A. J. Cook. This is another valuable little book which sold for 25 cents, and which we offer to close out at 10c. Postage 2 cents extra.

Guide to Horse-owners,

and complete Horse Doctor. By M. Young. A valuable pamphlet of 100 pages. Regular price 25c. Will close out at 10c each. By mail 2c extra.

A Dozen Attractive Pamphlets.

Seven of any of the following postpaid for one new subscriber and your own renewal with $2.00, or two sent postpaid for your own renewal with $1.00.



They are not only attractive, but so valuable and helpful that they should be read by every one who desires to improve his life, and live happier; and who does not have such desire? Doubtless many have read "The Greatest Thing in the World; or, Love the Supreme Gift," by Drummond; and others have heard of it. "Love is the fulfilling of the law;" and the more of it we can get into our lives, the better for the world and for us.

These little books are 16mo, 32 pages, with handsome light-blue parchment cover, and nice, clear print. Price 10c each or 90c per dozen, any one or assorted books, postpaid or with other goods. Publisher's price 20 cents each.

1. Love, the Supreme Gift; The Greatest Thing in the World. By Prof. Henry Drummond.
2. The Perfected Life: The Greatest Need of the World. By Prof. Henry Drummond.
3. How to Learn How. Addresses by Prof. Henry Drummond. I. Dealing with Doubt. II. Preparation for Learning.
4. Power from on High: Do We Need It? What is It? Can We Get It? By Rev. B. Fay Mills.
5. The Message of Jesus to Men of Wealth. A Tract for the Times. By Rev. George D. Herron. Introduction by Rev. Josiah Strong, D. D.
6. The First Thing in the World; or, the Primacy of Faith. By Rev. A. J. Gordon, D. D.
7. Hope: The Last Thing in the World. By Rev. A. T. Pierson, D. D.
8. The Fight of Faith and Cost of Character. Talks to Young Men. By Rev. Theodore L. Cuyler, D. D.
9. The Four Men. The Aspect of Man from Four Standpoints. By Rev. James Stalker, D. D.
10. How to Become a Christian. Five Simple Talks. By Rev. Lyman Abbott, D. D.
11. The Dew of thy Youth. A message to "Endeavorers." By Rev. J. R. Miller, D. D.
12. Temptation. An Address to Young Men. By Rev. James Stalker, D. D.

Drummond's Addresses.

Besides the booklets above we have Prof. Drummond's addresses, six in number, with biographical sketch, making a 16mo book of 140 pages, bound in board covers, part cloth and part paper, in two shades of blue, neatly figured, making a very handsome book. Price only 30c postpaid, or 25c if sent with other goods. Given for your own renewal with $1.10.

Illustrated Pilgrim's Progress.

We have secured some of a very fine English edition of Pilgrim's Progress, illustrated with over a hundred very realistic pictures. The book is 16mo, printed on very fine paper, containing 384 pages, and the illustrations are the most striking, and true to the characters represented, that we have ever seen in the most expensive editions. The binding is cloth, richly illuminated in six colors, with title in rich goldleaf on back and side. There is no paper wasted in wide margins; in fact, there is so little trimming that some of the leaves have to be cut apart. It is a book of such quality and make-up as to easily bring $1.50 at retail a few years ago. In this day of cheap books and low prices it is necessary to close out the last of the edition away below actual value. We offer these at 50c each; by mail, 10 cts. extra. We will give one free postpaid for one new subscriber with your own renewal and $2.00, or postpaid for your own renewal with $1.35.

Foster's Pilgrim's Progress Illustrated.

This is from the Charles Foster Publishing Co., Philadelphia, where the Story of the Bible comes from. The book is 9½ inches long, 7¼ wide, and 1¼ thick. It has 425 pages and 175 illustrations. Ever so many, to whom I have shown it, pronounce it a $2.00 or a $2.50 book; but by buying a large number of them at a time we can sell them to you for only 75 cts. This book is so heavy, however, that it can not be sent by mail for less than 23 cents, making 98 cents by mail postpaid. The covers are most beautifully embellished in scarlet and gold, and many of the pictures are worth to me alone the price of the book. Among them I would mention Christian and Pliable in the Slough of Despond; Mr. Worldly Wiseman; Giant Despair, etc. But the sweetest and best of them all to me is Prudence talking to the boys. A single glance at the book by anybody, when you mention the insignificant price for so beautiful a volume, will make him hold up his hands in astonishment. Each 75 cents. Given for one new subscriber and your own renewal with $2.00, or given for your own renewal with $1.50. Postage 23 cts. extra. Gilt edge 25 cts. additional.

The Story of the Bible.

STORY
OF
THE BIBLE

This wonderful book is the production of Rev. Charles Foster, of Philadelphia, lately deceased. It is the whole Bible reproduced in simple language, making a book of 700 pages, illustrated with 274 engravings. It is so plainly and pleasantly written that grown people, as well as children, will hardly want to lay it down. In the hard passages in the Bible, difficult to understand, it makes a commentary that will be thankfully received by some others besides children. Indeed, it has proven so simple, reliable, and helpful, that it has been reprinted in many foreign languages. Over 400,000 volumes have been sold since it was first issued. It is a well-made book, printed on fine paper. Regular agent's price is $1.50. Our price is $1.00; 20 cents extra if sent by mail, or given free for one new subscriber and one renewal with $2.25, with 20 cents extra to pay postage.

Bible Pictures, and What They Teach Us.

By Charles Foster. It contains 315 large illustrations from the Old and New Testaments, with brief descriptions. It contains 232 pages, 8x10, with embossed cloth cover, title in gilt, printed on heavy paper. The book weighs 2½ lbs. It will make an excellent Christmas or birthday present for a child. It is written chiefly to instruct the children, and should be in every home. Regular agent's price, $1.50. Our price, $1.00. By mail, 20 cts. extra. Given for two new names and your own renewal with $3.00, and 20 cts. extra to pay postage, if sent by mail.

ANY TWO of the following books given for one new subscriber and your own renewal with $2.00, or any one given for your own renewal with $1.10. If by mail, add 5 cents each for postage.

POTATO
CULTURE

The A B C of Potato Culture. Paper, 220 pages, 4x5, illustrated. This is T. B. Terry's first and most masterly work. The book has had a large sale, and has been reprinted in foreign languages. The second edition, reset and almost entirely rewritten, is just issued. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. Price 40c, postpaid.

ABC
STRAWBERRY
CULTURE

The A B C of Strawberry Culture. Paper, 150 pages, fully illustrated. This is Terry's latest *small* book, and has received some very high words of praise. Who among rural people does not have a little garden-patch? If you would learn to raise in it that most luscious of all fruit, the strawberry, with the best results, you can not be without this little book. Even if you can't grow strawberries you will be the better for reading it.

TOMATO CULTURE

Tomato Culture. In three parts. By J. W. Day, D. Cummins, and A. I. Root. Paper, 150 pages, illustrated. A most valuable treatise embracing field culture, forcing under glass, and raising plants for market. Valuable to any one raising garden stuff of any kind, aside from tomatoes. Price 40c, postpaid.

TILE
DRAINAGE

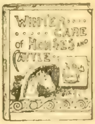
Tile Drainage By W. I. Chamberlain. This is a valuable companion to our other rural books. It embraces the experience of forty years of one of our foremost practical agriculturists, who has laid with his own hands over 15 miles of tile. Paper, 150 pages, illustrated. Price 40c, postpaid.

What to Do, and How to be Happy While Doing It. This is a book of 190 octavo pages same size as this, and 80 illustrations, written by A. I. Root; especially helpful to those out of employment or to those who have a hard time in making both ends meet. How to find something to do right at home instead of going to the already too crowded cities. How to be your own boss and enjoy your work. The true secret of real enjoyment in work. This book will well repay a careful reading. Price, in paper covers, 50 cents.

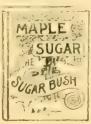
ANY THREE of the following books given for one new subscriber and your own renewal with $2.00, or any one given for your own renewal with $1.00. By mail, add 5 cts. each for postage.

ABC
OF
CARP
CULTURE

A B C of Carp Culture. In paper covers, illustrated. This is a work of 70 pages, 7x10, written by Geo. Finley and A. I. Root, and the best authority on the subject of carp culture yet in print. The rearing of carp is a pleasant and profitable amusement. This book will tell you all about it. Price 30c.

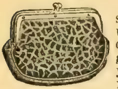


Winter Care of Horses and Cattle. This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in the book. It has 44 pages, 7x10, illustrated. Price 30c, postpaid.

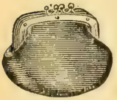


Maple Sugar and the Sugar-Bush. By A. J. Cook. Paper, 44 pages, 7x10, illustrated. This is most valuable to all who are interested in the product of our sugar maples.. No one who makes maple sugar or syrup should be without it. If you don't make maple syrup you may want to know how it is made, and how to judge of a good article when you buy it. Price 30c, postpaid.

Some choice bargains in purses. Any one of the following would make a handsome present.



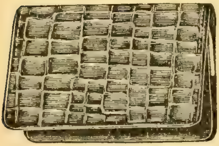
Alligator Coin-purse; medium size, nickel frames, gusset ends; usually sold at 20 cents. Each 12c; dozen $1 25; postage, each, 4c. Six given for one new subscriber and your own renewal with $2 00, or two for your own renewal with $1.10.



Farmers' Prosperity Purse. "Holds plenty." Genuine buckskin or black kid; Jumbo size; three roomy pockets; heavy nickel, firm, ball frame. Each 15c. dozen $1.50; postage, each, 5c. Five given for one new subscriber and your own renewal with $2 00 or two for your own renewal with $1 05.

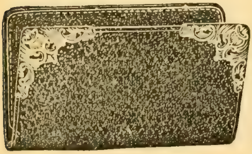
Monkey-skin Specie-purse. Faced with leather. This purse is made from genuine monkey skin and comes in assorted colors; handsome two-ball frame, an A1 purse in every respect, as well as a curiosity. Each 25c; dozen $2 50; postage, each, 4c Three given for one new subscriber and your own renewal al with $2 00, or one given for your own renewal with $1 00.

Misses' Seal Leather Combination Book.



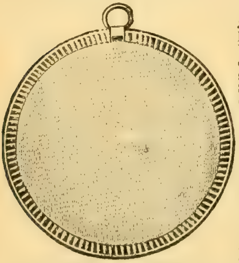
Size 3 x 4½ inches; inside faced with leather; coin pocket with nickeled snap frame and two regular pockets; gusseted card-pocket with flap and tuck-strap and one regular pocket. A handsome present for any young lady. Each 35c; postage 5c. Two given for one new subscriber and your own renewal with $2 00, or one given for your own renewal with $1 10.

Seal Grained-leather Combination Book.

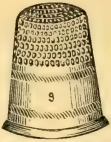


Fancy metal corners; leather-faced card-pocket in flap; coin-pocket with snap frame and three regular pockets; size 3 x 4½. Each 25c; dozen $2 50; postage, each, 5c. Three given for one new subscriber and your own renewal with $2.00, or one given for your own renewal with $1.00.

Our Christmas Token Book. Real seal-grained leather combination book. One of the neatest books on the market; size and description as above, but better material and finish. Each 50c. Two given for one new subscriber and your own renewal with $2.25, or one for your own renewal with $1.25.



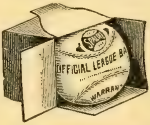
Original Augite Stove-mat. Absolutely indestructible. Food cooked on it does not scorch or burn. Specially good for oatmeal, rice, milk, or custard. Diameter nine inches, in border; not the cheap worthless mats that are made by some, but the identical mat we formerly sold at 25 cents each. Each 5c; dozen 35c; gross $3.50; post. 5c. Two dozen given for one new subscriber and your own renewal with $2.00, or one dozen postpaid for one new subscriber and your own renewal with $2.00, or ½ dozen given for your own renewal with $1.00, or three postpaid for your own renewal with $1.00.



Thimble, German-silver. Regular goods; standard quality, open or closed ends. Each 5c; dozen 45c; postage, each, 2c. Five given for your own renewal with $1.00.

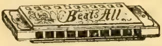
Thimble, Aluminum. Is very light, bright, and durable; closed end only. Each 5c; per dozen 40c; postage, each, 2c. Five given for your own renewal with $1.00.

Thimble, Coin-silver. Very neat design; would make a handsome Christmas present; open or closed end. Each 20c; dozen $2 00; postage, each, 3c. Three sent postpaid for one new subscriber and your own renewal with $2 00, or one sent postpaid for your own renewal with $1 00.



Base-balls, "Boy's Lively." Each 10c; dozen 95c; postage, each, 7c. Two given for your own renewal with $1.00.

Base-balls, "League Junior, Spaulding's" Each 25c; dozen $2.50; postage, each, 8c. One given for your own renewal with $1 00.

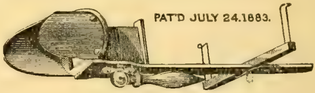


Harmonica, "Quarter Drive." Each 25c; dozen $2 50; post, each, 3c. Three given for one new subscriber and your own renewal with $2.00, or one given for your own renewal with $1.00.

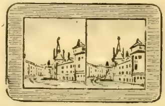
Bay-rum Soap, for making the skin tender and preventing chapped hands. A handsome cake, purest of milled soap. Box of 3 cakes, 25c; cake, 10c; dozen $1.00; postage, a box, 15c. Three boxes given for one new subscriber and your own renewal with $2.00 or one box given for your own renewal with $1 00.

Yankee Shaving-soap. Too well known to need a description. Cake 10c; dozen $1 10; postage, each, 3c Two cakes for your own renewal with $1.00.

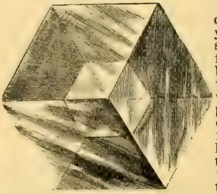
Shaving-brush, "Barbers' Best." A genuine good brush. Each 25c; postage 4c. Given for your own renewal with $1.00.


PAT'D JULY 24.1883.

Stereoscope. Neat wood frame and imitation rosewood hood with sliding bar, full size, good lens, an excellent offer for a quarter. Each 25c; dozen $2 00; postage, each, 15c. One given for your own renewal with $1.00.



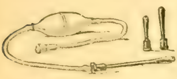
Stereoscopic Views. A choice variety of foreign or American views. Specify which in ordering. Each 3c; dozen 30c; 100 for $2 00; post., each, 2c. 2½ dozen given for one new subscriber and your own renewal with $2 00, or one dozen given for your own renewal with $1 05.



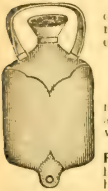
Paper-weight, "Dodecahedron." Several years ago we made a special importation from Germany of 1000 beautiful glass paper-weights. Nothing would be more appropriate for a bee-keeper, as it illustrates the mathematics of the honey-cell to perfection. No matter which way you may happen to turn it you will be delighted by new beauties. When we found it in Chicago it was retailing at 80 cents; but buying 1000 of them we got them at a figure that enables us to sell them at 15c; doz. $1 65, postage, each, 3c. Four given for one new subscriber and your own renewal with $2 00, or one given for your own renewal with $1.10.

Rubber Goods.

We guarantee these goods to be strictly "firsts," the same quality that is usually sold by druggists at double these prices. Our large output in rubber goods keeps our stock fresh throughout the year, as the stock is constantly changing and new goods arriving almost weekly from the factory. Many dealers sell worthless rubber goods unknowingly, as they become rotten where carried in stock any great length of time.



Hard-rubber Bulb Syringe. Made of the best white rubber, with solid suction-pipe, and three pieces of hard-rubber fittings. Each in fancy box, 50c; postage 8c. Sent postpaid for one new subscriber and your own renewal with $2.00, or your own renewal with $1.30.



Hot water Bags. A comfort in time of sickness. in fact. an article that is now considered indispensable to every well-organized household.

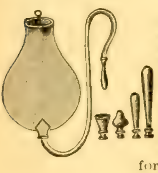
2-qt. size, each 70c; postage 15c.
3-qt size, each 75c; postage 17c.
4 qt. size, each 80c; postage 19c.

Or any of the above given for one new subscriber and your own renewal with $2.00, or for yourown renewal with $1.50.

Combination Water-bottle and Fountain Syringe. Exact shape as hot-water bag, with three piece set of hard-rubber fittings and long rubber tube in addition.

2-qt. size, each 95c; postage 20c.
3 qt. size, each $1.00; postage 21c.
4 qt. size, each $1.10; postage 22c.

Any of the above given for one new subscriber and your own renewal with $2.25, or your own renewal with $1.80.

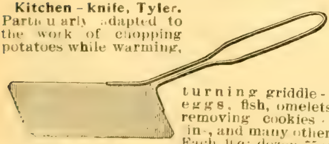


Fountain Syringe. Made from the best white rubber, with hard-rubber connections; regular number of feet of rubber pipe, patent water stop.

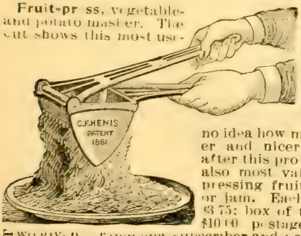
2 qt., each 85c; postage 13c.
3 qt., each 95c; postage 15c.
4 qt., each $1; postage 17c.

Any of the above given for one new subscriber and your own renewal with $2.20, or for your own renewal with $1.70.

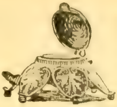
Hardware Specialties.



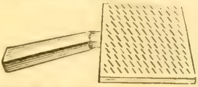
Kitchen-knife, Tyler. Particularly adapted to the work of chopping potatoes while warming, turning griddle-cakes, eggs, fish, omelets, etc., removing cookies from tins, and many other uses. Each 10c; dozen 75c; postage 5c. Seven given for one new subscriber and your own renewal with $2.00, or three given for your own renewal with $1.00.



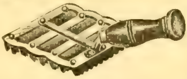
Fruit-press, vegetable-strainer, and potato masher. The cut shows this most useful household utensil in the act of mashing potatoes. You have no idea how much lighter and nicer they are after this process. It is also most valuable for pressing fruit for jelly or jam. Each 35c; doz. $3.75; box of three doz., $10.00; postage each, 20c. Two given for one new subscriber and your own renewal with $2.00, or one given for your own renewal with $1.10.



Ink-stand. Bronzed iron frame and hinged cover; glass well; a good sensible ink-stand. Each 10c; dozen $1.00. Seven given for one new subscriber and your own renewal with $2.00, or two for your own renewal with $1.00.

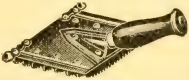


Cattle-card, for cattle and horses. Solid block; good strong handle. Each 5c; dozen 45c; postage, each, 5c. One dozen given for one new subscriber and your own renewal with $2.00, or five for your own renewal with $1.00.

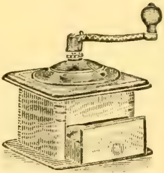


Currycomb, No. 1. 8-bar "Leader." Enameled handle, extra heavy and well braced, open back. Each 10c; doz. 88c; post., each 9c. Seven given for one new subscriber and your own renewal with $2.00, or two for your own renewal with $1.00.

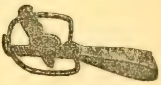
Currycomb, No. 2. "Eclipse" 5-center. five-bar, japanned; two heavy wires running through bars and over the back. Each 5c; dozen 48c; postage 6c. Five given for your own renewal with $1.00.



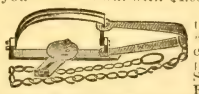
Currycomb, No. 3. 8-bar closed back, well finished, enameled handle, extra strong. Each 15c; dozen $1.50; post., each, 22c. Five given for one new subscriber and your own renewal with $2.00, or two for your own renewal with $1.05.



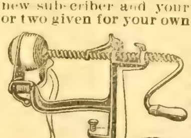
Coffee-mill, "Pulverizer." A rapid grinder. Full-size, lacquered copper-bronze castings, varnished hardwood box. This is the same mill we have formerly sold at 75c. Each 50c; dozen $4.75. One given for your own renewal with $1.25.



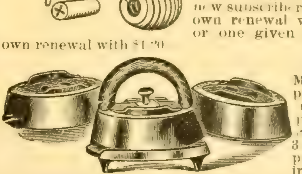
Steel Trap, No. 1. Jaws spread three and one-half inches; unusually sharp spring; useful for rats, gophers, and other small animals. Each 10c; dozen 95c; post., each, 6c. Seven given for one new subscriber and your own renewal with $2.00, or two given for your own renewal with $1.00.



Steel Trap, No. 2, "Protector." Size for muskrats, skunks, woodchucks, etc., or to use in poultry-house and barn. Spread of jaws, 4 inches. Each, with chain, 15c; dozen $1.45; postage, each, 8c. Five given for one new subscriber and your own renewal with $2.00, or two given for your own renewal with $1.05.



Apple Paring, Coring, and Slicing Machine. No farm-house should be without one of these machines. It pares, cores, and slices the fruit. Apple and core are pushed off separately. Each 45c; dozen $4.50; post., each, 25c. Two given for one new subscriber and your own renewal with $2.20, or one given for your own renewal with $1.20.



Flatirons. Mrs. Potts' pattern, full nickel-plated. Set comprises 3 double-pointed irons, assorted sizes; detachable, always-cool handle, and iron stand. Do not confuse these with the cheap polished irons now on the market. Per set of three irons, handle, and stand, 75c. Given for one new subscriber and your own renewal with $2.00, or for your own renewal with $1.50.

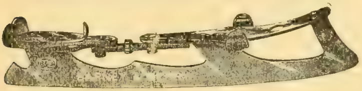
Extra Handles for the above irons. Each 10c; dozen $1.00; postage, each, 11c.

Barney & Berry Skates.

There's nothing new or novel about these except our price, which is to a cent what retail dealers pay for these goods. Nothing will please a boy more for a Christmas present than a pair of B. & B. skates. The 32-cent values are the same as are usually sold at 85 cents.

Table giving sizes of skates in inches, with the corresponding number of shoes.

Skates,	Inches.	7	7½	8	8½	9	9½	10	10½	11	11½	12
Shoes,	No.	9½	11	12½	1	2½	4	5½	7	8½	10	11½



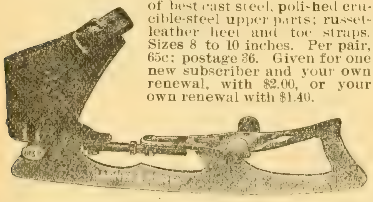
No. 1, "Boy's Favorite," Club-lever Skate, made with cast-steel blades, polished crucible-steel upper parts, model same as highest grade. Sizes 8 to 12. Per pair, only 32c; postage 36c. Given for your own renewal with $1.10.

No. A N, "Boys' Favorite," Club-lever Skate, nickel plated, otherwise as above. Per pair 54c; postage 37c. Given for one new subscriber and your own renewal with $2.00, or your own renewal with $1.30.

No. Z N, "Boys' Pride," Club-lever Skate, solid cast-steel blades, hardened, nickel-plated, upper parts of crucible steel; a bright strong skate, without an equal for the money. Sizes 8 to 12. Per pair, $1.05; postage 40. Given for one new subscriber and your own renewal with $2.30, or your own renewal with $1.80.

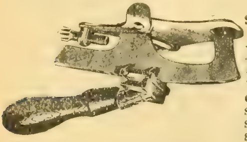
No. 2, American Club Skate, nickel-plated, grade 2, welded steel blades, tempered upper parts of crucible steel. Sizes 9 to 12 inches Per pair, $1.88; postage 40. Given for one new subscriber and your own renewal, with $3.10, or your own renewal with $2.60.

No. 2L, Ladies' Skate, blades of best cast steel, polished crucible-steel upper parts; russet-leather heel and toe straps. Sizes 8 to 10 inches. Per pair, 65c; postage 36. Given for one new subscriber and your own renewal, with $2.00, or your own renewal with $1.40.

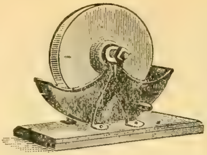


No. LA, Ladies' Skate, cast-steel blades, polished crucible-steel upper parts; russet-grained leather straps, with nickel heel-bands. Sizes 8 to 10½ inches. Per pair, 88c; postage 37. Given for one new subscriber and your own renewal, with $2.15, or your own renewal with $1.65.

No. LZ, Ladies' Skate. "Nothing better made;" solid cast steel, hardened blades, polished upper parts, crucible steel, russet-grained leather, nickel heel-bands; full nickel-plated. Sizes 8½ to 10½ in. Per pair, $2.25; postage 40. Given for one new subscriber and your own renewal, with $3.50, or your own renewal with $3.00.



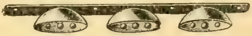
The Diamond Skate-sharpener. The illustration shows something entirely new in a skate-sharpener. With one of these every boy can sharpen his own skates; usually sold at 25c; our price 20c each; dozen $2.00; postage 5c. Given for your own renewal with $1.00



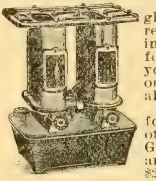
Family Grindstones, 6-inch. No kitchen should be without one of these every-day helps. With one of these your wife can sharpen the knives, etc., without your help. This fact alone ought to place one in every kitchen. They are made with iron frame, trough, and crank. The entire mountings nicely japanned. Each 50; dozen $4.25. Two given for one new subscriber and your own renewal with $2.25, or one for your own renewal with $1.25.

Family Grindstone, 8-inch. Each 60c; doz. $6.00. One given for our own renewal with $1.35.

Shaft Chime-bells, No. 1. Made from wrought metal, of superior tone and finish. Nickel-plated and polished. Riveted on iron straps, 3 bells on a strap, two straps in set. Set 75c. Given for one new subscriber and your own renewal with $2.00, or given for your own renewal with $1.50



Shaft Chime-bells, No. 2. Swiss chime, harmonized and tuned, 4 bells on a strap, two straps in set. Set $2.00. Given for one new subscriber and your own renewal with $3.25, or given for your own renewal with $2.75.

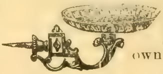


Lamp Stove, 1-burner. Single lamp with 4-inch burner, removable mica front, for giving light. Each 40c. Two given for one new subscriber and your own renewal with $2.05, or one given for your own renewal with $1.15.

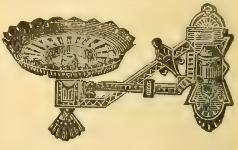
Lamp Stove, 2-burner. Two four-inch burners with wicks, otherwise as above. Each 75c. Given for one new subscriber and your own renewal with $2.00, or for your own renewal with $1.50.

Lamp Stove, 3-burner. Three 4-inch wicks with separate burners. Each $1.00. Given for one new subscriber and your own renewal with $2 25, or for your own renewal with $1.75.

Wicks, 4-inch, for the above stoves. Each 3c; dozen 30c; postage, each, 2c.

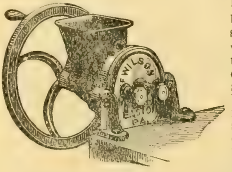


Flower-pot Bracket, No. 1. Iron bronzed, artistic design. Each 5c; dozen 50c; postage, each, 9c. Five given for your own renewal with $1.00.

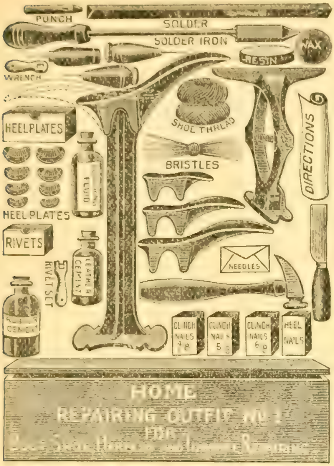


Bracket, No. 2, flower-pot or lamp. Elegant swinging bracket, 5-in. dish and 6-inch arm. Each 10c; dozen $1; postage, each, 15c. Seven given for one new subscriber and your own renewal with $2.00, or two for your own renewal with $1.00.

Wilson's No. 1 Bone-mill. "A corner-stone to success in the poultry business." Every one who keeps poultry for profit should have some way of pulverizing bones, etc., to aid in the making of shell. We consider this mill the best size for grinding dry bones and shells, crockery, corn, and the like for chicks, cracking wheat or even making coarse graham for porridge. A circular with testimonials will be mailed free on application. Each $4.00; with sieve attachment, $4.50. Given for one new subscriber and your own renewal with $5.25, or for your own renewal with $4.75; attachment 50c extra.



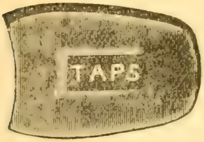
Root's Repairing Outfits.



Home Repairing Outfit, No. 1. *A box of ammunition for the battle of economy.* Consisting of 44 first-class tools and materials as shown in cut. All these tools are full-sized, practical, neat, and cheap—not mere toys. With one of these outfits any person can do his own half-soling, boot, shoe, rubber, harness, and tinware repairing. Each set, packed in a strong wooden box for safe shipment, weighing 18 lbs. Price $2.00; half dozen $10.50. Given for three new subscribers and your own renewal with $4.25, or for one new subscriber and your own renewal with $3.25, or for your own renewal with $2.75.

Home Repairing Outfit, No. 2. This is the same set as the above except with the harness and soldering tools left out, and is put up expressly for shoe and boot repairing. Per set, packed in a strong box, $1.25; half dozen sets $6.90. Special terms to agents on the above sets in quantities. Given for two new subscribers and your own renewal with $3.00, or for one new subscriber and your own renewal with $2.50, or for your own renewal with $2.00.

Better Prices on Half-soles.



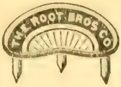
We have taken advantage of the leather market by purchasing a large stock just before the advance in price. These are identically the same soles that we and other reliable dealers have heretofore been and are still selling at $1.75 per dozen. We are now prepared to furnish them for 15 per cent under the market. ☞ Please take notice that the dozen price is for assorted sizes, running from 7 to 11. If you want one particular size, the price will be 15c per pair straight through

Men's Half soles. Nos. 7 to 11. Pair 15c dozen pairs $1.50; postage, pair, 6c. Five pairs given for one new subscriber and your own renewal with $2.00, or two pairs for your own renewal with $1.05.

Boys' and Youths' Half-soles. Nos. 11 to 6. Pair 12c; dozen prs. $1.35; post., pr., 4c. Six pairs given for one new subscriber and your own renewal with $2, or two pairs given for your own renewal with $1.

Women's and Children's Half-soles. Three sizes (3, 5, and 7). Pair 10c; dozen pairs $1.00; postage, pair 3c. 20 per cent extra for all No. 7's. Seven pairs given for one new subscriber and your own renewal with $2.00, or two pairs given for your own renewal with $1.

Clinch Nails. Put up in ¼-lb. packages; sizes ⅜, ½, ⅝, and ¾. Package 5c; doz. 35c; post., each, 5c. Six packages given for your own renewal with $1.

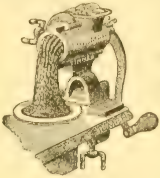


Star Heel-plates. Package of ½ dozen pairs, assorted sizes, 10c; post. 5c. Two packages postpaid for your own renewal with $1.00.

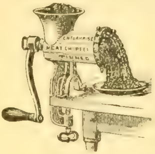
Top Heel-lifts. Pair 5c; dozen pairs 50c; post 3c. Five pairs given for your own renewal with $1.

Meat-cutters.

Family meat-cutters are a very great convenience, and well nigh a necessity. Certain it is, that, if properly used, they will pay for themselves in a very little time in any family of ordinary size. There is hardly another item in the list of provisions for the family board that counts up faster than the meat bill; and any thing that will serve to economize in the meat supply, and at the same time render much of it more edible, is certainly worth investigating.



Triumph Meat-cutter. This is one of the best cheap machines of the kind on the market. It is also easily taken apart to clean. Each $1.35. Given for one new subscriber and your own renewal with $2 60, or given for your own renewal with $2.10.

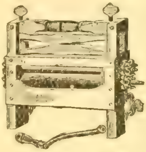


Enterprise Meat-chopper, No. 10. This machine does not tear the meat, but chops it precisely like the snipping process, like a pair of shears. It is made to clamp to the table by means of a thumb-screw, making it very convenient. This size will chop one pound per minute, and is especially desirable for any one on the meat diet. Each $2.40. Given for one new subscriber and your own renewal with $3.65, or your own renewal with $3.15.

Sausage-stuffing Attachment, 35c extra.

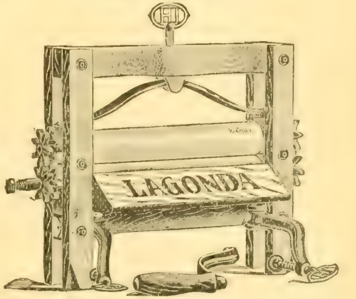
Extra Knives for the above. Each 30c; post. 0c.

Falcon Wringer.

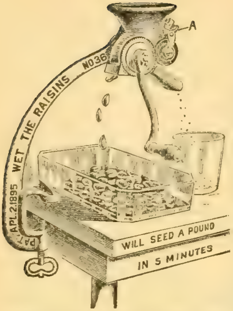


This is a full-size wringer, and we consider it the best cheap wringer on the market. It has all the improvements of other wood-frame wringers except that the rollers are not pure white rubber, but is well worth the price here asked. Rolls 10x1¾ in. Each $1.25. Given for one new subscriber and your own renewal with $2.50, or given for your own renewal with $2.00.

Lagonda Wringer.



Extra strong frame; steel spring; best American rolls, vulcanized on the shaft. This wringer is sold the world over at three dollars each. The rolls are warranted to be first class. Each $2.00; extra rolls $1.00 each. Given for one new subscriber and your own renewal with $3.25, or for your own renewal with $2.75.

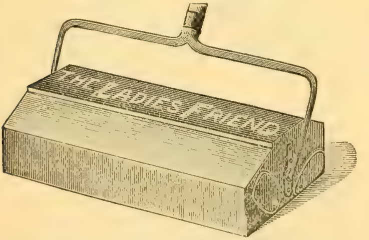


Crown Raisin-seeder. We consider this the best machine of its kind on the market, and should be in every family, hotel, bakery, etc. It removes the seeds from all kinds of raisins (big or little) without waste, and makes this heretofore disagreeable work clean and pleasant, and is so simple a child can operate it. It is tinned to preven from rust; easily cleaned. Each 50c; dozen $5.00. Two given for one new subscriber and your own renewal with $2.25, or one given for your own renewal with $1.25.

Carpet-sweepers.

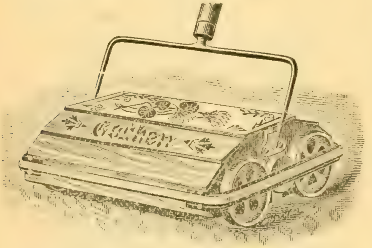
We purchase these goods in gross lots at spot-cash price, hence the price here offered. We have sold this make of sweepers for years, and have yet to find any thing better for the money. We especially call your attention to the Goshen, which we have found equal and many instances superior to sweepers sold at retail for three and four dollars each.

"Ladies' Friend" Carpet-sweeper.



Oak-finish case; wheel on one side; best quality brush. Mrs. Root has used one of these sweepers for ten years, and does not want any other kind. Each $1.50. Given for two new subscribers and your own renewal with $3.25, or for one new subscriber and your own renewal with $2.75, or your own renewal with $2.25.

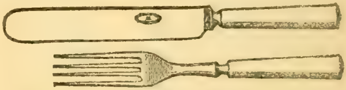
"Goshen" Carpet-sweeper.



Light oak finish; four drive wheels; best quality brush; latest style dust-dump; rubber band around it to prevent it from marring the furniture; the easiest-running sweeper out. The best article in the list for Christmas, birthday, and wedding presents. Each $2.00. Given for two new subscribers and your own renewal with $3.75, or one new subscriber and your own renewal with $3.25, or your own renewal with $2.75.

SILVERWARE DEPARTMENT.

We handle only the best grade of Rogers silverware, and guarantee the quality. While goods bearing the "Anchor" trade-mark will strip more silver than any other brand of Rogers goods on the market, we guarantee that our prices are as low as any genuine Rogers goods can be purchased for. There is nothing more appropriate for Christmas, wedding, or birthday presents than Rogers' flat tableware. Every one would know the value of a present if it is stamped "Rogers' Anchor brand." One-half dozen at dozen rate.



Round Medium Knives and Forks. Knives are triple plated on steel, and forks triple plated on nickel silver. We guarantee this set equal to any thing on the market for wear. Per set of six knives and six forks $3.30; postage 36c.

Round Medium Knives Only, as above. Dozen $3.30; postage 44c.

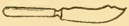
Round Medium Forks Only, as above. Dozen $3.30; postage 28c.

Dessert knives to match the above. Dozen $3.20; postage 40c.

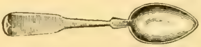
Dessert-forks to match the above. Dozen $3.20; postage 20c.

Six knives and six forks, one dozen of any the above, given for six new subscribers and your own renewal with $7.00, or given for one new subscriber and your own renewal with $4.55, or your own renewal with $4.00.

Butter-knife, triple plated on steel. Each 35c; dozen $3.50; postage, each, 4c. Two given for one new subscriber and your own renewal with $2.00, or for your own renewal with $1.10.



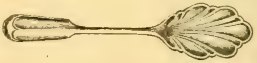
Teaspoon, Tipped Pattern, best triple plate on nickel silver. Set of 6, $1.50; postage 8c. Given for two new subscribers and your own renewal with $3.25, or your own renewal with $2.25.



Dessert-spoons, Tipped Pattern, best triple plate on nickel silver. Set of six, $2.50; postage 12c. Given for four new subscribers and your own renewal with $5.25, or one new subscriber and your own renewal with $3.75, or your own renewal with $3.25.

Table-spoons, Tipped Pattern, best triple plate on nickel silver. Set of six, $3.00, postage, 16c. Given for five new subscribers and your own renewal with $6.25, or one new subscriber and your own renewal with $4.25, or your own renewal with $3.75.

Sugar-shell, Tipped Pattern, triple plate on nickel silver; very handsome, each 50c; postage 3c. Two given for one new subscription and your own renewal with $2.25, or one given for your own renewal with $1.25.



Sugar-shell, Shell Pattern, single plate, very handsome. Each 35c; postage 3c. Two given for one new subscriber and your own renewal with $2.00, or one given for your own renewal with $1.10.

Rogers' Silver-metal Flat Ware, made by the genuine Rogers' people, who turn out none but good goods. These are made of solid silver metal, and are alike throughout. They are fully as light and handsome in appearance as the high-grade plated goods, and are particularly recommended by the makers for wear. Prices are as follows:

Teaspoons, Silver-metal. Set of six, 60c; postage 12c, or given for one new subscriber and your own renewal with $2.00, or your own renewal with $1.35.

Dessert-spoons, Silver-metal. Set of six, 90c; postage 14c. Given for one new subscriber and your own renewal with $2.15, or your renewal with $1.65.

Table-spoons, Silver-metal. Set of six, $1.20; postage 14c. Given for two new subscribers and your own renewal with $3.00, or your own renewal with $1.95.

Butter-knife, Silver-metal, fancy pattern. Each 20c; postage 5c. Sent postpaid for your own renewal with $1.00.

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Honey Column.

CITY MARKETS.

MILWAUKEE.—The condition of this market for honey seems to be favorable. The receipts are good and the demand fair for both comb and extracted, and quality better than in times past. We quote fancy white in 1-lb. sections, 12@13; No. 1, 11@12; fancy amber, 9@10; extracted, in barrels, kegs, and pails, white, 5½@6; amber, 4½@5½; dark, 4@5½; beeswax, 25@27.

A. V. BISHOP & Co.,
Nov. 8. Milwaukee, Wis.

NEW YORK.—Honey arriving quite freely; trade quite active; market ruled steady at unchanged prices. State white-clover comb, fancy, 12@12½; fair, 10@11; buckwheat, 8@9; white clover, extracted, 5@5½; buckwheat, 4@4½; California comb, 11@13; extracted, 4½@5; Southern, in bulk, per gallon, 48@50; Beeswax in demand; market, 26@27. Write us before making shipment.

FRANCIS H. LEGGETT & Co.,
Oct. 26. Franklin and Varick Sts., New York.

ST. LOUIS.—There has been no change in the honey market since our last quotations. The demand for honey is still rather slow. The most of our large manufacturing companies have bought largely of western stock. Beeswax, prime, 24@24½.

WESTCOTT COMMISSION Co.,
Nov. 8. 213 Market St., St. Louis, Mo.

CINCINNATI.—Demand is slow for extracted and comb honey, unusually so for this time of year. We quote best white comb honey at 10@13; dark, 7@8; extracted honey brings 3½@6, according to quality. Supply is good of all kinds. There is good demand for beeswax at 22@25, for good to choice yellow, with a fair supply.

CHAS. F. MUTH & SON,
Nov. 8. Cincinnati, O.

CHICAGO.—Fancy white, 11@12; No. 1 white, 10; best grades of amber, 8@9; fair grades of amber, 7; dark grades or mixed, 7@8; extracted white, 5@6, amber, 4½@5; dark, 3½@4. All of these grades vary in quality and style of package, which makes it difficult to tell just what a certain colored honey will bring without knowing flavor and body thereof. Sales are of small amounts, and supply abundant. Beeswax is wanted at 26@27 on arrival.

R. A. BURNETT & Co.,
Nov. 8. 163 South Water St., Chicago, Ill.

NEW YORK.—Our market does not show much activity, and comb honey is moving off rather slowly. Receipts are large, and the stocks are accumulating. While choice grades of white are likely to find sale at present quotations, prices on off grades and buckwheat will have to be shaded in round lots. We quote fancy white, 12; No. 1, 10@11; amber, 9@9½; buckwheat, 8@8½; extracted California white, 5@5½; California light amber, 4½@5; clover and basswood, 5; Southern, in barrels, in good demand at 50c per gal.; Beeswax finds ready sale at 26@27.

HILDRETH BROS. & SEGELKEN,
Nov. 8. 120-122 W. Broadway, New York.

MINNEAPOLIS.—Fancy white clover, 10@12; No. 1, 9@10½; white extracted, 5@6. Best time of season to ship; stocks can be handled promptly now.

S. H. HALL & Co.,
Nov. 8. Minneapolis, Minn.

SPRINGFIELD.—Honey in good demand. Fancy white clover, 12c; choice white clover, 10; buckwheat, 10c.

PERKINS & HATCH,
Nov. 7. Springfield, Mass

CLEVELAND.—Fancy white, 12@13; No. 1 white, 11@12; fancy amber, 9@10; No. 1, amber, 8@9; fancy dark, 7@8; white extracted, 6½; amber, 5½@6; beeswax, 28.

A. B. WILLIAMS & Co.,
Nov. 9. 80-82 Broadway, Cleveland, Ohio.

BOSTON.—Comb honey is moving more freely now. Fancy white, in cartons, 13; No. 1 white, in cartons or glass-front cases, 11@12; fancy light amber, 10; white extracted, 6@7; light amber, 5@5½; beeswax, 28, and wanted.

BLAKE, SCOTT & LEE,
Nov. 8. Boston, Mass

DETROIT.—Best white comb honey, 11@12; other grades, 8@10½; extracted white, 5@6; dark, 4@5; beeswax, 25@26.

Nov. 9. M. H. HUNT, Bell Branch, Mich.

KANSAS CITY.—The receipts of comb honey are large; extracted, light; demand fair. We quote fancy white comb, 11@12; No. 1, 10@11; amber, 8@10; extracted white, 5½@6; amber, 5@5½; dark, 4@4½; beeswax, 22@25.

C. C. CLEMONS & Co.,
Nov. 8. Kansas City, Mo.

ALBANY.—Our market is very active, and stock moving off rapidly. Fancy white is scarce, and we are unable to fill all of our orders for this grade. Buckwheat and mixed are plentiful. There is also a better demand for extracted. We quote fancy white, 13; No. 1, 12@13; buckwheat and mixed, 7@10; extracted, dark, 4@4½; amber, 4½@5.

CHAS. MCCULLOCH & Co.,
Nov. 9. Albany, N. Y.

COLUMBUS.—Fancy white, 13; No. 1, 11@11½. There is now existing a very good demand for white comb. Receipts are light. We want honey, and are in the market to buy any quantity. Advise us what you have to offer, stating price and quality.

THE COLUMBUS COMMISSION & STORAGE Co.,
Nov. 9. 409-413 N. High St., Columbus, O.

FOR SALE. — 25 bbls. extracted pure white-clover honey, very light in color, and of finest quality, at prices as cheap as the cheapest, quality of goods considered. Can put it up in any style of package. Write for price, stating quantity desired.

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill

FOR SALE.—Alfalfa honey, light amber, in carload lots. 3¾ cts. per lb.; sample, 10 cts.

JOHN NIPPERT, Box 1051, Phœnix, Arizona

FOR SALE.—Tons of honey, comb, at 7 to 12c per lb. Inclose stamps for samples of extracted at 4 to 6c, in 160-lb. kegs, f. o. b. N. L. STEVENS, Venice, N. Y

FOR SALE.—Pure honey.—Clover, extracted, 6½ cts. per lb.

I. J. STRINGHAM, 105 Park Place, N. Y. City.

FOR SALE.—Good extracted white-clover honey and heartsease and Spanish needle. Either, price 5c per lb., 60-lb. cans, 2 in a case. Send stamps for samples.

JNO. A. THORNTON, Lima, Ills.

No cheap Queens to sell; but the best.

Golden 5 band, or 3 band from
imported mother. Untested, 75 cts.; tested, $1.00.

L. BEAUCHAMP, Box 613, San Antonio, Texas.

BARRED PLYMOUTH ROCKS, Hawkins' noted strains. A few choice birds for sale cheap, $1.00 each. FRED H. BURDETT, Clifton, N. Y.

70 COLONIES OF BEES FOR SALE. In 1½-story Langstroth hives, in good shape, at $2.50 per colony. Italians and Carniolans.

D. C. HEIDT, Oateston P. O., Barbour Co., Ala.

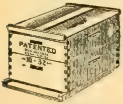
FOR SALE.—Green-bone cutter. Good order; can be used with power; bargain.

Box 57, Medina, Ohio.

The Review at Reduced Rates.

The **Bee-keepers' Review** is $1.00 a year, but, for the sake of getting it into new hands, and being able to begin the year with a large list, I will, until Jan. 1st, send free to each *new* subscriber, a copy of "Advanced Bee Culture," a 50-cent book of nearly 100 pages, that gives briefly but clearly the best methods of management from the time the bees are put into the cellar in the fall until they are again ready for winter—32 chapters in all. Those who prefer can have, instead of the book, 12 back numbers of the **Review**, the selection to be mine, but no two numbers alike. All who send $1.00 now will receive the last four issues of this year free, and the **Review** will be sent until the end of 1898. If not acquainted with the **Review**, send 10 cents for three late but different issues.

W. Z. HUTCHINSON, Flint, Mich.



$100

Given as **BOUNTIES** to purchasers of the improved Danz. Hives and Sections. For particulars see p. 64, of my book, "**Facts about Bees.**" Mr. M. H. Mendleson, of Ventura, Cal., with 900 colonies, bought 26 of my hives, 500 supers, and 50,000 sections this season, and intends buying many more next. Mr. S. D. Matthews, of Hamilton, N. C., and others, from a few hives, in 3 years, will order hundreds. Mr. J. T. Calvert, treasurer and business manager of the A. I. Root Co., says of Facts, "It is better than bee-books sold for 50 cts." Sent free for 2 cts. in stamps. Address

F. DANZENBAKER, Washington, D. C.

Philadelphia Office of

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10 Vine St., Philadelphia, Penn.

Now is the time to order

Shipping-cases, Winter Cases, Chaff Division-boards, etc., etc.

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Another Great Clubbing Offer!

Two Great Papers at Price of One.

GLEANINGS IN BEE CULTURE and the PRAIRIE FARMER (Chicago), both papers for only $1.00.

This offer is good either to new name or renewal, but in case of renewal all back subscription must be paid up in addition to the $1 for the two papers. The Prairie Farmer is one of the leading farm papers, and is clean in both the reading and advertising pages.

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Shipping-cases.

Root's popular Non-drip Shipping-cases at factory prices at DES MOINES, IOWA. Immense stock. All orders for cases or other goods shipped by return freight. Address

JOS. NYSEWANDER, Des Moines, Iowa.

Weekly Bee Journal One Year for 25c.

To every *new* subscriber who sends us $1.50 before Jan. 1, 1898, we will mail a copy of Prof. Cook's 460-page cloth-bound book, "BEE-KEEPERS' GUIDE" (price $1.25), and the **Weekly American Bee Journal** for one year. That makes the **Journal** only 25 cents—a trifle less than half a cent per number. Or, if any one now getting the **Bee Journal**, and whose subscription is paid to Jan. 1, 1898, will send us $1.50, with a new name, we will mail the above book to the sender, and the **Bee Journal** for a year to the new name and address. We need hardly tell you what the **American Bee Journal** is; but if you are not acquainted with it, *write us for a free sample copy.*

Address

GEO. W. YORK & CO., - 118 Michigan St., Chicago, Ill.

GLEANINGS IN BEE CULTURE

A Journal devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
Published by The A. I. Root Co.
$1.00 per Year Medina, Ohio.

Vol. XXV. NOV. 15, 1897. No. 22.

STRAY STRAWS

FROM DR. C. C. MILLER.

ULR. GUBLER, who writes the monthly counsels for beginners in *Revue Internationale*, says he has found by years of trial that bees winter better in hives not painted. I believe Doolittle stands on the same ground. I want covers painted, but not bodies.

THE *Busy Bee* for October is devoted almost entirely to sweet clover, the shears being freely used on GLEANINGS for that purpose; and, as showing progress, the present attitude of GLEANINGS is contrasted with that of five years ago, when an editorial said, "Sweet clover is not a success with us for fodder or feed at all, although stock will eat it to some extent if cut just at the right time."

LAST YEAR I said, "*If* paraffine is left untouched by bees, why not apply a coating of it to ends of top-bars and other points we don't want glued?" Ignoring that first word "if," an item has been going the rounds of the German bee-journals that painting with paraffine would prevent gluing. There is now no "if" in the case. Bees *will* daub propolis on paraffine. Sehen Sie, meine guten deutschen Freunde?

A WRITER in one of the German bee-journals thinks bee conventions will be better if discussions are held with wine-cup in hand. It doesn't work that way over here. At Buffalo, a man who had evidently had the wine-cup or some other cup a bit too much in hand, seemed to be trying to hinder useful discussion. His friends should put a seal on his lips in conventions hereafter, or else keep close watch on what passes his lips before coming.

"DON'T FORGET that *very few* people get tired of first-class honey; and, above all, remember that almost any one will tire of poor, thin, unripe honey." That's what Dan White said, p. 767, but it's time it was said over again. That story of his almost makes me want to raise extracted honey so I can peddle it. [Yes, indeed. This is one of the truths that should be passed around. If it could only take wing like an unmitigated malicious lie, it would do the world a lot of good. There is too much slipshodness in harvesting and marketing honey.—ED.]

I ARISE TO REMARK in a very subdued tone, that, much as I like the groove in the bellows-board, I don't think it's *quite* equal to a ¼ x ⅛-inch cleat. [Perhaps. But the groove looks so much neater, and is so much easier to apply, from a manufacturer's point of view, that the little cleats could hardly be considered. But for the life of me I can not see why a groove is not just as good if made deep enough. Possibly ours are not deep enough. —ED.]

I DON'T KNOW for sure just why sections this year should be half an ounce lighter than last. Something might be due to the fact that empty sections were furnished more freely than last year. July 1 there was an average of nearly four supers to each colony in one apiary. But the honey-flow has much to do with the weight of sections. Sometimes the upper two-thirds of a section will be sealed, the section being rather thin, then comes a change in the harvest, and the lower third looks bulged.

ACETYLENE GAS. After reading what A. I. Root said about this, I determined to have it in my house just as soon as it could be had. According to the *Cosmopolitan*, however, it is dangerously explosive. I don't believe I want it. [Yes, and from recent reports in other periodicals it would seem as if this new gas could never be used for domestic lighting. By the way, doctor, the members of the Root firm are just equipping their houses with electric lights, the current coming from the factory. If you will move down close beside us we will give you some of the same sort of "juice."—ED.] [Doctor, see p. 791.—A. I. R.]

SOME TIME within the past five years a smoker-hook like that on p. 779 was sent me, asking about patenting it. I said it couldn't be patented—old. I wish I could remember where it was first described—was it in GLEANINGS? At any rate I used it years and years ago, but got tired of it. Still, some will like it. [Yes, I am quite certain that the hook was illustrated in GLEANINGS; but no enterprising manufacturer at that time probably thought enough of it to have it supplied with his regular stock. It does not stand in the way if one does not care to use it; and on the other hand it may be a very great convenience. I have been trying it a little myself, and must say I like it.—Ed.]

Oh the drouth! Three months ago the earth was a mat of white clover; to-day, Nov. 1, you must get down on hands and knees to find it, and some places none then. [I am afraid, doctor, there is a good deal of truth in what you say; and I am afraid, too, that the condition you observe will be found generally over the country. Whether that will have the effect of cutting down the growth of clover next summer, remains to be seen. We have just had two or three days of rain—raining almost constantly. It always rains, you know, during election. Possibly the rains may help to revive the drooping spirits of the clovers now almost out of sight, even if it does not those of some of the politicians, surely buried for ever out of sight.—Ed.]

I agree with you, Mr. Editor, p. 766, that bees put more wax in combs in a dull flow, but I always supposed that such wax was the regular article, and I never heard proof that any of it was lugged in from outside on their legs. [It may be that bees do not use "gathered" wax to thicken combs in dull seasons. But we do know that they will darken a nice light comb put up next to a dark one; and the only way we can account for this darkening is on the ground that the bees borrow wax from the old comb and put it on the new. I should be more inclined to believe that bees follow no invariable rule—that wax is wax to them, whether it be the regular article coming in the regular way or that which has been borrowed or stolen.—Ed.]

The German Bee-keepers' Central Association at present numbers about 25,000 members. As far back as I can remember, no bee-keepers' society in this country ever reached that number. [No, nor anywhere near it; and yet the U. S. B. K. U. ought to have at least that many names to back it up. Why is it that there is such apathy on the part of bee-keepers? Only the other day I received a letter from a man who thought we ought to do less talking and do more work in the matter of fighting adulteration; but I am almost certain he is not a member of the U. S. B. K. U. Many of these fellows who talk about "action" and "less talk" are just the very ones who grumble, and yet never would think of putting their shoulder to the wheel themselves.—Ed.]

While hauling bees home, a little episode broke in on the even tenor of my life. I made a rack, and put it on top of a heavy wagon-box—springs under—31 colonies at a load. Unloading I stood on top and handed hives to Philo. When the last hive was left on the rack, extending over the hind end, my weight, together with the hive, overbalanced the rack, and it tipped. The hive lit on ground upside down; I fell on hive; rack fell on me; rack wasn't hurt a bit. [It is too bad, doctor, there was not a Kodaker around to preserve the whole situation. If you will agree to go through with the performance again I will promise to take a series of snap shots, even if I have to go clear to Marengo. But say, doctor, I should like to know what was the temper of the bees, and possibly of *yourself*, about the time you all three came down "ker slap."—Ed.]

Replying to your question, p. 767, I didn't cushion down the paraffined paper. Didn't need to. Bees glued it down. The only point I made was that bees would put glue freely on a paraffine surface, in contradiction of the claim made in Gleanings for 1896, p. 756, that bees dislike paraffine and are not inclined to deposit propolis on it. [If you had cushioned down the paper there would have been less propolis, I am almost sure, doctor. Mr. Danzenbaker insists that paraffine paper should be squeezed down tight to the surface of the sections. If there is a little crack or air-gap, as there certainly must have been between the sections and the paraffine paper that you put over your sections, propolis would certainly be put in to fill up the spaces. But I think we might just as well admit that bees do not dislike paraffine paper as much as we thought they did; and we certainly can not now say that they will not gnaw it under some circumstances.—Ed.]

That footnote, p. 766, seems to help the boom for figwort, although it was hardly so intended. But when you say, "Our own experience, so far as I can remember," that phrase, "so far as I can remember," makes your cultivation of the plant only a memory. Please tell us how much land you have now occupied with figwort, and how much less with sweet clover. In plain words, is it advisable to occupy good land with figwort? [Figwort grows wild in our river-bottom land, or it did do so a few years ago when we were specially interested in studying this plant. The only point I tried to make was that there is more honey—considerably more of it—to a single stalk of figwort, than in a stalk of sweet clover. In answer to your question I would say that it would not pay to try to grow either one on good ground. No, we are not growing figwort on our land, neither are we trying to grow sweet clover; but, unlike figwort, it will of its own sweet will, spring up and thrive in all waste places. No scythe on our premises dare molest it.—Ed.]

In reply to your implied question on page 766, Mr. Editor, I don't know just how many days' work was involved in getting that crop of 17,150 lbs. of honey; but I know that two of us did all the work except perhaps what might be equivalent to two months' work. Neither did I spend my whole time at it, for I furnished weekly to bee and agricultural journals some half a dozen columns of stuff about bees—in fact, not such a very light year's work at writing alone. But I had to get up at three and four in the morning through a good part of the harvest; and if I'd been less young and tough I couldn't have stood it. [I do not understand you, doctor. You say, "I know that two of us did all the work except perhaps what may be equivalent to two months' work." Do you mean that you practically harvested that whole crop, two of you, in the equivalent of two months? or that two of you spent ten months, leaving out the other two months which you apparently except? or what do you mean? It would be very interesting indeed to know approximately just how many days it took to harvest that crop; and if two of you did it practically in 60 days, it was a big feat indeed. It is possible that many bee-keepers are spending too much time in getting a given crop of honey; and if you have broken the record, let us hold it up high until some one else breaks it.—ED.]

G. M. DOOLITTLE IN HIS APIARY.

Testing Honey from Deep-cell Foundation.

BY ERNEST R. ROOT.

After the Buffalo convention I told Mr. Doolittle that I should probably call upon him in a week or so. But circumstances made it necessary for me to change my plans; and the consequence was, it was not till the 5th or 6th of September that I found it possible to make my proposed visit. Having made a tour in and around Seneca Co. and Seneca Lake, Tompkins Co. and Cayuga Lake, I made my way northward to Syracuse, intending at that point to ask Mr. Frank A. Salisbury, our branch manager, to accompany me out to see "the uncrowned king of the Buffalo convention." And this reminds me that the editor of the *Review*, Mr. Hutchinson, fully indorses this deserved title; and before I go further I am going to give you right here what Mr. H. has to say about our friend:

DOOLITTLE AND SALISBURY SAMPLING COMB HONEY FROM DRAWN FOUNDATION.

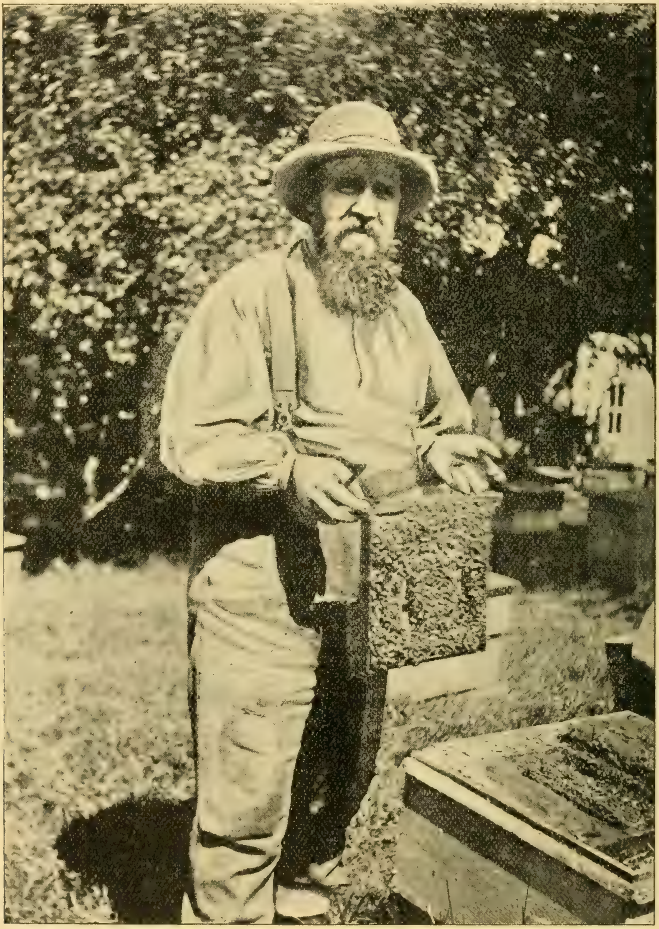
> Doolittle was certainly what GLEANINGS called him, the "uncrowned king of the Buffalo convention." I think no one will be offended if I say that I think that he was the best speaker there was there. No one who has simply read his staid, sober, matter-of-fact articles in the bee-journals would dream of the manner in which he can flavor his speeches with anecdote and illustration. For instance, he was telling how some old man was working himself all but to death that his children might not be compelled to begin at the foot of the ladder as he had done. Mr. Doolittle asked him if he had not enjoyed himself when he began housekeeping in a humble way, and he and his young wife had worked cheerfully and happily as month by month they added to the comforts of their home. The old man was silent a minute and then admitted, "They were the happiest days of my life." "Would you rob your children of this happiness?" asked Mr Doolittle. I don't suppose Mr. Doolittle knew it, but it brought tears to my eyes, so clearly did it bring back those happy days when wife and I began housekeeping in a humble home built by my own hands, and "worked cheerfully and happily as month by month we added to the comforts of our home."

Mr. Salisbury and I oiled up our wheels the night before, and the next morning donned our knickerbockers, golfs, and sweaters, preparatory to a twenty-five-mile ride to Borodino. The morning was all that could be asked for; and then began the heavy grinds up the hills, followed by almost mile-a-minute coasts down the other sides of the grades. Frank knew better than I how to take advantage of the hills about Syracuse, and he certainly knew how to let his wheel "go gallagher" down these long coasts. I did not dare to let mine out at such break-neck speeds; and the consequence was, when we came to a level stretch I had to do some hard pedaling to make up.

On we sped, over hills and valleys, till we came to Rose Hill, where that great seedsman, Mr. F. B. Mills, lives. Mr. M. has here an immense seed-farm, fine buildings, and beautiful surroundings. But as we were in a hurry we did not stop.

Mr. Salisbury, ahead as usual, put his feet up on his coasters, and let his wheel go, and I did likewise. The long easy coast down the hill, almost flying through the air, was most delightful. I did not realize we were making such time till Mr. Salisbury called out, pointing over to the left, "There is Doolittle's!"

I had given our Borodino friend no intimation that we expected to call on him that day. Indeed, I was not sure he would be at home. As he was away from the railroad I could not reach him by telegram the day before, and accordingly took my chances. With some doubts Frank and I, covered with dust and sweat, stalked into the yard, when who should meet us but the "king" himself? Instead of



DOOLITTLE AND HIS FAVORITE FIVE-BANDED BEES.

the "crown," he had on an old straw hat and old clothes ready for work in the apiary.

"Well," said Mr. Doolittle cordially, "this is rather unexpected."

"All the better," I said. "We have caught you, not as you would be, perhaps, to receive company, but just as you are every day in the apiary." I told Mr. Doolittle that I had come to do some kodaking as well as to talk bees, and I asked if he would have any objections to my taking a photo of him just as he stood. "Not at all, sir; I am at your service."

We then walked over to his hive of five-banders that have the extra choice breeding-queen. Lifting a frame out he held it up before us and remarked, "How do those bees suit you?"

As he did so I took a shot. The large view accompanying shows him just as he stood. He had opened the hive without smoke, without veil, and the frame was pulled out in a way that would be regarded as a decided intrusion by some bees. But these great big yellow bees went right on with their work just the same, apparently, without observing it.

The lights and shades in the picture are rather strong, owing to the fact that Mr. D.'s apiary is in an orchard, and the hive before which he stood was in the open.

Mr. Doolittle does not believe in wearing fine clothes out among his bees, especially when he is not expecting visitors; and if you will look sharp in the bottom of the picture you will see he tucks his pants down his stockings, to keep out crawling bees. Many a man, possibly, would object strenuously to being "shown up" before the readers of GLEANINGS, in every-day attire; but Mr. Doolittle said he was not ashamed to be seen in work-clothes.

After we had looked at the beautiful bees, and heard Mr. Doolittle tell how these yellow banders, unlike ordinary Italians, would cap their honey as white as do the blacks, we repaired to his shop, there to look over samples of his honey produced from the drawn or deep-cell foundation, to which Mr. Doolittle has already referred in one of his articles. He had kept these samples for me to try, when I should come. He procured a plate and case-knife, and together we repaired to a cool place under one of the large spreading apple-trees. We first tried the chewing quality of a sample made from drawn foundation, and then a sample made from ordinary foundation. It was evident that there was more midrib on the new product than on the old.

While Messrs. Doolittle and Salisbury were sampling, I, with my fingers all sticky with honey, grabbed up the camera and took a shot, and the result reduced to half-tone is also shown.

You will notice that Mr. Doolittle uses a tall section, and the same are held in wide frames while on the hive. He has been using these deep sections for years, if I am correct; and although I forgot to ask him *why* he did not use the regulation 4¼, the reason is, no doubt, owing to the fact that his markets call for these tall boxes; and as long as they bring a little higher price, he will, of course, continue to use them.

About this time we were called to dinner; and, with appetites whetted to the keen by the ride, Mr. Salisbury and I enjoyed Mrs. Doolittle's excellent dinner. After a most delightful chat, on bees and the issues of the day (for Mr. D. has given much thought to some of the great sociological problems of our times), Mr. S. and I took another route back to Syracuse. He led off as usual. We passed through Marcellus, where N. N. Betsinger once lived. Frank pointed out to me the beautiful home Mr. B. once owned, but which, with every thing else, had been swept away in a lawsuit. Whether Mr. Betsinger was guilty of the awful crime of which he was accused, and for which he was tried, we shall, perhaps, never know. I do not remember exactly the result of one or more lawsuits. I believe, however, the jury disagreed. The affair is a most sad one, and the lawyers reaped a harvest.

Winding around the river we came to Camillus. At present there is there a Mr. House, a bee-keeper, a brother of George W. House, formerly one of the editors of the *American Apiculturist* in its palmiest days. Mr. House has a most beautiful location for an apiary. Just back of his dwelling is a sort of ravine where his apiary is kept between two of those big hills for which York State is famous. As I have before stated, I took a Kodak view, but, most unfortunately, it was so late in the day it did not develop up as it should. But there is not a prettier site in the whole world for an apiary. Possibly Mr. House will favor us with a photo of his yard at some future time.

Leaving here, Mr. Salisbury took the lead as usual; but I noticed that his legs were beginning to give out. He had not been used to such long rides as I had, and was not standing the trip quite as well, and I was just beginning to wonder whether I hadn't better push him with my wheel, when he made an extra spurt, and in a short time we landed at the top of a long hill, and coasted almost into Syracuse.

Frank is one whom it is a pleasure to know. He is rather quiet in his manner; and if the other fellow will do the talking, he will keep still, occasionally throwing in a word. He is a single man, but I have heard it whispered that one or two nice girls were after him. If they get him he'll be a prize. But the lack of a wife is more than made up by a most excellent mother, whom to know is to love almost as one's own.

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MILES MORTON.

His Comb-Honey Super; His Portable House-Apiary.

BY ERNEST R. ROOT.

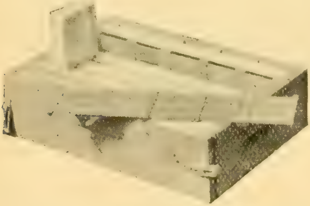
Although I have already said a few things concerning friend Morton I have not said all I want to say yet. In the first place I had better formally introduce him—at least so far as

I can do it on paper, and here he is—in half-tone if not in flesh and blood.

When and where Mr. Miles Morton was born is not particularly important; but it is pertinent to remark that he has been for years using certain devices and practicing methods that to me appear to have been in advance of the times. As his "bee fixin's" had real merit other bee-keepers seeing them wanted them also, and the result was he simply *had* to make for them what they could not buy at the regular factories. I have already said he has a finely equipped little shop, and from this he has turned out some nice fine work of the Dr. Tinker order. He does not seem to have gone into the manufacturing business so much for the money as an accommodation to his neighbors and friends. Well, this same philanthropic spirit shows itself in his willingness to show me his ideas, knowing that I would give them away to the world.

MILES MORTON.

I have already referred to the salability of his sections; of the cleated separators that he has been using for the last eight or nine years; and I now show you a view of his comb-honey super, a half-tone reproduction from a snap shot that I took while in his apiary.



MORTON'S COMB-HONEY SUPER.

On top of the super is his section, the size of which is just exactly 3¾x4¾. The section is four-piece, having practically no bee-space on either side, as I have already explained, the bee-space itself being formed by the cleats on the separators themselves. The size of this section is regulated by the fact that his regular L. hive is 18½ inches long inside; and this length, divided by five, gives 3¾. The super itself, being of the same length, is made enough deeper to give a nice proportionate height to the section; for the York Staters, you know, have a strong inclination toward a tall or deep section.

As I have already said, the cross-cleats on the separator are held on simply by ordinary cabinet-makers' glue. In all the years that Mr. Morton has been using this separator, not once has one of these glued strips come off. As you already know, this separator pleases us so well that we have practically adopted it for our 1898 separators, for plain 4¼ sections without bee-ways.*

These sections in Morton's super are supported on slats, spaced and fixed at the proper distance; and the top edge of the sections comes flush with the top edge of the super. When there is only one super on the hive, enamel cloth is laid directly on top of the sections. If there is to be more than one, a sort of honey-board having slats corresponding to the top of the sections is laid on top, there being no bee-space between the sections and the slats. On the top side of this honey-board there is a bee-space that provides for the usual space under the next super above.

It will thus be seen that the top and bottom of the sections are entirely covered, whether the super is used singly or tiered up. While I can not bring myself to believe that thus covering the tops of the sections is just exactly the thing, I am not prepared to say that Mr. Morton is all wrong; for on the principle of "by their fruits ye shall know them," his honey is in every respect first-class.

Another unique feature of this super is a tightening-side, two long screws being passed freely through the center at each end of this side into the center of the ends; and these screwheads stick out far enough to permit of the use of an ingenious metal wedge. The left end of the super shows the wedge with its thin edge to the head of the screw, and in this position permits of the widening of the super by about ⅝ inch, for the easy insertion and removal of the sections. After they are all inserted, and the separators in their appropriate places, the wedge at the left side is turned other end to and driven down, bringing the thick end of the wedge against the screw-head. As the head of the screw is fixed, the wedge crowding against the head and against the super side, it causes the sections to be squeezed up compactly.

The interior view of the house-apiary shows just how these wedges are adjusted while the bees are storing honey in the supers. This method of tightening is quite ingenious, and I do not know that I have seen another just like it.

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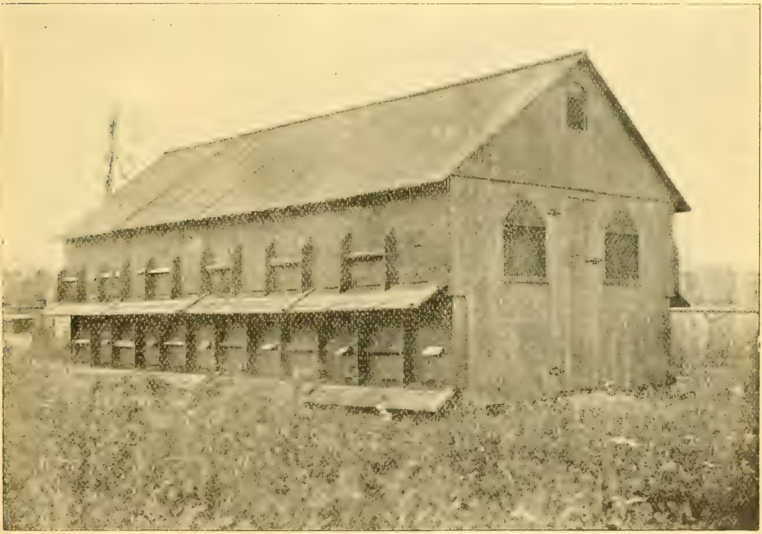
* A full description of this is given in another column.

MORTON'S PORTABLE HOUSE-APIARY.

While I was stopping at Mr. Morton's home I made a free use of the camera — taking shots at several of his ingenious "fixin's." On the day that I was at Groton there was to be another bee-keepers' picnic at Freeville, concerning which I will have something further to say at another time. It was arranged that Mr. Niver was to take the train, and Mr. Morton and I were to drive over to Freeville, stopping on the way to inspect one of his house-apiaries. Arriving at one of them I took a couple of views which speak for themselves. The building is made up of large panels, said panels being made at home, and so constructed that they can be put together and form a very neat and commodious house-apiary. By looking sharply at the half-tones you will see the dividing lines in the roof and in the floor. Any point that may be settled upon as being a good honey range may be selected as the site for the building; then if for any reason that locality in years to come does not prove to be as good a one as at first, the structure can be taken down panel by panel, piled on a wagon, and taken to some other point and erected.

The building is very cheaply constructed, single-walled, and made entirely of tongued and grooved boards. Close to each edge of the roof-boards is a groove, or gain, that conveys the water away from the cracks, thus making a roof at a very small expense, practically water-tight. At each end there are two large windows with bee-escapes at the top as shown. Between the windows there is a doorway.

A unique feature of the construction is that there is a jog in the siding, as will be seen. The first tier of hives rests on the floor—see interior view. The second tier of hives rests on the jog or shelf, said shelf being exactly balanced, as it were, over the first section of the siding below. The object of this jog is to give the operator inside of the building plenty of room to work over the lower tier of colonies, without danger of bumping his head against the upper tier; then, while working over these latter, the operator stands upon the lower tier of hives. The jog will show both on the inside and outside. The arrangement seems to work very nicely, and adds but a trifle to the whole cost of the building.


MORTON'S PORTABLE HOUSE-APIARY.

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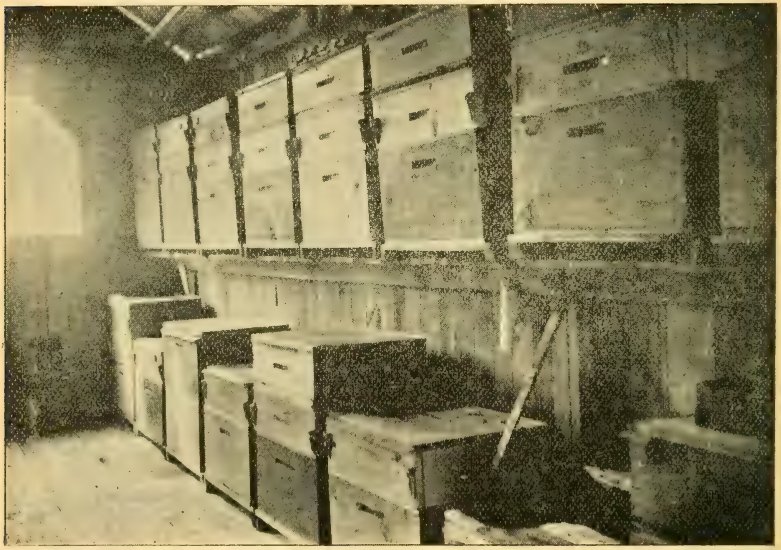
PARAFFINE PAPER FOR SECTIONS DEFENDED.

BY F. DANZENBAKER.

Mr. Root: — I notice the article of Mr. F. L. Thompson, page 734, from the *A. B. J.*, page 677, relating to paraffine paper for covering sections, etc., in which the writer shows to his satisfaction that he has not succeeded with it as well as he ought to or might have done, and decides he can get along without it. So far, well enough. Experience proves that bees daub and plaster propolis over enameled sheets, duck, burlap, etc., and cut through them at their option. Any of these things cost in the first place. While bees at the close of the season may paste propolis at the juncture of the paper with the sections, to prevent wax-moths or worms from secreting themselves under the paper on the top of the sections, they do not paste on its surface between the sections as they do with the other fixings.

It was the comparative freedom from propolis when properly applied that has proved its value here on my own hives which, as there are no rabbets or open spaces requiring much gluing, may make some difference, for I have seen L. hives covered with enameled sheets, with tin rabbets stuck even full of propolis.



MORTON'S PORTABLE HOUSE-APIARY—INTERIOR VIEW.

To-day I examined here my last supers taken off, and there was simply a line of pure wax at the juncture of the paper and edge of the sections. It could all be wiped off the entire super of sections with a piece of section, when they were ready to pack in cases, and the same set of mats had been used during April and May in North Carolina, then two weeks in Washington, and six weeks in Virginia. Many of them had been taken off and used seven and eight times, and are good yet. Heavier, tougher paper like flour-sacks, double coated, might be as strong and tough as enamel sheets, at one-third the cost.

But in using the lighter paper, single coated, at 2 cts., it is intended to use it but once or twice, so that it may be as well to tear it off and use clean sheets to clean it off when time is more valuable, as we use new sections rather than clean up the old. However, I think it is nearer correct to say that the sections are *practically* free from propolis, or sufficiently so to justify the use of the paper in the time saved alone; of time cleaning sections where it is not used; but this is mentioned only as a compensation to offset the time taken to put it on. But it was not intended to be the *leading advantage*—only a secondary one.

The *chief* one was that it renders the supers air-tight at once, when properly placed, thus sparing thousands of bees to go afield that might be needed to keep up the necessary heat in the super without it. While saving other bees from gathering so much propolis before work could begin in the supers at all in a cold spell, it might save a week or more in the starting in the supers, and pay a hundred times its cost, even if a new sheet had to be used each time.

Washington, D. C., Oct. 31.

["It never rains but it pours." Perhaps friend Danzenbaker will think so when he reads the following editorial from the *Canadian Bee Journal* for November. Here is the item:

> Our brethren (or, rather, *some* of our brethren) on the other side of the line have been advocating paraffine paper over the sections to prevent the bees from propolizing the sections. We do not hesitate to say that no bee-keeper, anxious to produce first-class honey in sections, and willing to master that business, should use such paper. In the first place, it is not necessary so far as propolizing is concerned; and in the

next, the best filled sections can not be secured without a bee-space above the sections.

It is but fair to say that Mr. D. does produce some very fine honey, and some of his customers have secured some equally good, as I can personally testify. While I am an advocate of a bee-space over sections I would not say that first-class honey can not be produced by doing away with the space and using paraffine paper directly over and in contact with the sections. Mr. Miles Morton, who produces as fine honey as can be found in the world, uses an enamel cloth (the equivalent of paraffine paper), directly on the sections, and so do many others.—Ed.]

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DRY LUMBER FOR HIVES.

Its Great Importance for Western States; Why Bees Can Not Gather as Much Honey from a Distance of Four Miles as from Two.

BY M. A. GILL.

Mr. Editor:—May I call the attention of some of the eastern manufacturers of bee-supplies to the fact that goods intended for use in the arid regions should be kiln-dried to the "last extremity," or else the saw-gauges should be set to make at least $\frac{1}{8}$ inch extra in *all* bee-spaces, either of hive or super? For the last two seasons I have labored with our association to purchase their goods of your firm, having noticed, while inspecting the bees of the county, that, in most cases, the goods sent in here from your factory (through Barteldes, of Denver, I suppose) have stood the dry climate well, and that the bee-space, even in old hives, is about what it should be.

But both seasons the committee have decided to purchase where they could buy a little cheaper; and the consequence is we got a carload of supplies last spring that was manufactured from such green lumber that the bee-space has disappeared, or so nearly so that it is of no account.

I purchased for my own use 300 supers, and shall be compelled to get out strips and nail on top of all of them, for in some cases I find the sections stand flush with the top of super.

I for one want a $\frac{3}{16}$ bee-space, as I use no cloth or quilt on top of the sections, believing that I can keep the sections cleanest without them. I also fasten my starters so the dovetailed corner of the section comes up, which prevents the bottom from unlocking if the combs are not built clear down and fastened to the bottom; but the plan proved the worse for me in connection with the above-named supers; for our bees here, after July 1st, gather a very tenacious propolis; and in prying off the covers, even in the hottest part of the day, it would lift open the tops of from one to five sections on nearly every super.

Imagine the bitter thoughts a man would have, when spoiling from five to ten dollars' worth of fine comb honey every day, and all for the lack of a proper space! No, the goods we got last season may be all right back east, but they are a dismal failure in a climate like this.

I see one of your subscribers from the windy Pacific coast asks if bees can gather as much honey four miles as they could two. May I ask him if he could carry as many sacks of flour home in a day four miles as he could two? Is a colony of bees much different from an industrious man in doing a day's work? Doesn't each do all it can, governed by conditions and circumstances?

Speaking of windy locations, I will say that, in my opinion, a high wind and a heavy honey-flow will prove very disastrous to the working force in a very few days' time if they have to fly a long distance. So if my bees, and the field where I expected them to work, were four or five miles apart, whether it was a windy location or not, I would hitch up my team and give the bees a ride of at least 3½ miles.

Grand Junction, Colo., Oct. 7.

[Thanks, friend G., for the fine compliment you pay us. We have made a sort of specialty of hives for the West, knowing full well that all the lumber must be thoroughly dried or else provision made for bee-spaces. We have endeavored to do both; then if the bee-space does shrink up to the desired point, or the point that suits one, he can with a jack-plane go around the top edge once or twice, and bring it down a trifle.—Ed.]

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N. Y.

LATE-REARED QUEENS.

Question.—Will queens be of any use which are reared after all the drones are killed off in the fall?

Answer.—If *all* drones are killed before any queen becomes old enough to be fertilized, and the season of the year is late fall, of course such a queen will become barren, or a drone-layer. Some would say a drone-layer, every time; but my own experience has been that nearly or quite half of the queens which I have wintered over that were not fertilized never lay at all. But if I read the question aright, the asker wishes to know if a queen which fails to meet a drone before going into winter quarters will be of any use. Well, that depends upon the size of the colony she is in. If it is merely a nucleus, with no prospect of wintering over, then I should say such a queen would be worthless. But should the colony be a good one, then I should consider her of some value in such a colony, as my experience goes to prove that a colony having a queen, be she laying or otherwise, will remain much more quiet during the winter months than will a queenless colony; hence the colony having a queen will come out stronger in the spring, with less consumption of stores, than will one with no queen. This non-laying queen can be allowed to remain with the colony until we are able to procure a young laying queen from the South, and thus a good colony may be saved which otherwise might be lost. Still, I consider it much more desirable to purchase a queen from the South and introduce her to the queenless colony, where such is possible, than to try to winter over either a queenless colony or one having a virgin queen. My reason for so doing is this: Such purchased queen will commence to lay during February or March, and from her brood the colony will be materially strengthened before a queen could be procured in the spring, and thus the colony becomes ready to take advantage of the early honey-flows in the spring, which would be of little use to the colony which went through with a virgin queen.

But there are some other thoughts brought to mind by the question, which it might be well to notice. How does any one know that all the drones are killed off in his section of country previous to October 15th or November 1st? I have been quite sure several times that there was not a drone within reach of my queens' flight, and yet the spring proved that every one of my late-reared queens had found drones from somewhere, as they were all prolific layers of worker-eggs. In fact, every time I have tried to winter over virgin queens by way of experiment, all but two proved to be fertile in the spring, only as I clipped their wings so it was impossible for them to fly out in search of any drone that might chance to be left. So I have ceased to worry over late queens failing to become fertile.

Another thought is, that no bee-keeper should try to rear queens late in the season unless he preserves several hundred drones from the very best stock they have in the yard or apiary. It is a very easy matter to keep choice drones, even as late as December 1st, by taking frames of drone brood from choice colonies just before drone-rearing ceases, and putting said brood in a colony from which you now remove the queen. Ten days after the queen is removed cut off all queen-cells, and such a colony will keep its drones as long as any are desirable in the fall. If a frame of sealed worker brood is given to this colony occasionally, its strength will be kept up so that the flight of drones will be more profuse late in the season than would be the case if the workers become few in numbers. Then if an upper story filled with combs of honey be placed on the colony which is to retain the drones, the drones will fly still stronger, for, to fly strongly, drones need plenty of honey within easy access.

If you do not think it too much trouble, drones can be made still more active by feeding the queenless colony containing them plenty of warmed syrup or honey at about noon in September, half-past eleven during October, and at eleven o'clock in November, feeding only on such days as bees can fly. If, in addition to this, you go to this drone-keeping colony on some day during the latter part of September, when it is still and yet so cool that you will not be liable to be troubled with robber-bees, and carefully go over every frame in the hive, killing every drone that is at all inferior as to size, marking, or in any other way, you will have something along the line of drones for your late-reared queens to mate with that will enhance the value of every colony of bees containing such queens from 25 to 50 per cent. This is what I have done several falls, and I think it has paid me fully as well as any work I ever did in the apiary. If we are to keep up with the times we must strive for the *best* bees as well as the *best* honey, put up in the most marketable shape.

KEEPING AND USING OLD COMBS.

Question.—A few weeks ago I lost a colony by starvation and worms. I burned some sulphur under the combs and killed the worms. Will the bees accept such combs next spring? They still smell of sulphur. What should I do with the hive of combs till I can use them next spring?

Answer.—First, let me say that the thought of losing any good colony of bees from "worms" is erroneous. The larvæ of the wax-moth get possession of the combs only when the colony of bees becomes so weak (or is gone entirely) that it can not properly cover the combs. If your colony starved, then the worms took possession after the bees were dead. The burning of sulphur, to kill the worms, was the proper thing to do. As far as the smell of sulphur on fumigated combs is concerned, I am of the opinion that it is agreeable to bees which can take possession of them afterward. At least, I have noticed that such combs, lately fumigated, will call robber-bees in crowds in much less time than will combs not so fumigated. But even if offensive just after fumigation, the smell of sulphur would all vanish long before you could use the combs in the spring.

There should be no difficulty in keeping combs from now till next May in any place, unless it be in the far South, where they might have to be looked after occasionally to see that worms did not get on them again.

A good way to keep combs is to hang them two or more inches apart in an airy room, after they have been fumigated; and if thus left they will take care of themselves till swarming time next year, in most parts of the United States and Canada. If they are to be kept a year or more, or over summer, they will need fumigating or freezing till we are sure there are no more moth-eggs to hatch, when they can be packed in any place which is proof against the female wax-moth, when they will keep for an indefinite period, provided the place where they are stored is kept fairly free from moisture. In great dampness they would take on mold, and become rotten.

THE FENCE; A SUGGESTION.

Friend E. R. Root:—When I sent you that sample hive last winter I thought you would get on to the idea of the cleated separator and no-bee-way (or nearly so) section. It is my opinion that the top and bottom bars of the sections should be a little narrower than the sides or uprights. I believe it would give a better finish at these points. However, you are on the right track, but be sure not to put *all* the bee-space in the separator, for if you do the cappings will frequently be broken along the edges by being attached to the separator cleat. R. C. AIKIN.

Loveland, Colo., Nov. 4.

Heads of Grain from Different Fields

THOUSANDS OF TONS OF HONEY GOING TO WASTE IN SOUTH DAKOTA.

Dear Friend Root:—The greatest surprise of my life in the bee-line occurred the past season. I used to keep bees in Wisconsin, and in old Jersey, and know what they can and ought to do. When I came here and saw the flora and felt the high winds and the drouth, I concluded bees could not be kept except by feeding. One does not know unless he has tried. We may *think* we know all about a thing, and that is usually the time we are mistaken. It seems bees winter well here, both on summer stands and in cellars. The winter is usually broken up into extremes of warm and cold, with little snow, so that they can fly often. Given a good chaff hive like yours, and 25 or 30 lbs. goldenrod honey (the finest in the world, thick when gathered, and ready to seal at once), of which there is a great amount everywhere, and they will come through gloriously. The earth is usually dry, and a cyclone-cellar will winter the bees superbly. Well, a pair of two-frame nuclei, made July 1st, and furnished foundation as needed, gave a surplus in half-extracting-frames of 75 and 65 lbs., and have the 8 frames in brood-chamber full of honey, and are still working on mustard, and raising brood. I have a lot of mustard honey, and know of none better or finer flavored. It seems too bad to see thousands of tons of honey going to waste on these prairies when each farmer, by small investment, might have an abundance of nature's finest sweets.

STEPHEN J. HARMELING.

Marion, So. Dakota, Oct. 1.

QUEENS PIPING — HOW DO THEY DO IT? WHITE VS. YELLOW SWEET CLOVER.

In regard to queens' wings being instruments of piping, I would say emphatically that Dr. Miller is correct, for I had a queen several years ago that had not a vestige of a wing, and have seen her plainly when piping, and her piping was just as strong and vigorous as one with two perfect wings. There is a tremulous motion of the wings when piping, and you will see this same tremulous motion of the stub of the wings, or shoulders, the same as you see the tremulous motion of the flanks of a horse when neighing (if not of his tail), or the tremulous motion of the feathers of a hen when singing her morning song. From personal observation and "my" judgment, the tremulous motion of a queen's wings when piping is nothing more nor less than muscular vibration.

Replying to editorial, page 742, Oct. 15, I would say: Years ago, when I lived on a farm, there was a bunch of "white" sweet clover that grew under our east window. It grew about three feet high, and branched out much like buckwheat, and it was white with blossoms the greater part of the summer, and was literally covered with bees from daylight till dark. Since leaving the farm I have not seen a stalk of the white, but have seen a number of bunches of the yellow here, *about two feet high*, in the village, and I have noticed them at all times of the day, and have never been able to see a bee on it, although there are plenty of them from five rods to half a mile distant. Whether it is variety or locality, I could not say, outside of my own experience, which is positively the former.

Hillsboro, Wis., Oct. 25. ELIAS FOX.

[I am pretty near ready to give up. When two such men as you and Dr. Miller say I am wrong, I am half persuaded. A little incident happened the other day that quite converted me. Back of my desk I sometimes use sticky fly-paper to keep flies off my head, and I am not bald-headed either. One day I heard a loud sort of whining noise, and, looking down, I saw a fly on its back, wings stuck fast to the paper. Whining? Why, he fairly howled with his tiny voice, and it was perfectly evident that he made this noise, not with his wings, which were held immovable, but by means of a rapidly vibrating diaphram, perhaps. After that I caught a bee, and was cruel enough to treat her in the same way; and, lo and behold, this bee piped when I poked her, helpless and supine on her back; but don't tell the doctor that I am converted to his way of thinking. It would afford him too much real pleasure.—ED.]

GETTING BEES TO TAKE HONEY FROM SUPERS WITHOUT OTHER BEES GETTING IT.

As Dr. C. C. Miller wanted to know how to get bees to take honey from a super without other bees getting at it, I will say that, with us Iowans, by taking an uncapping-knife to uncap all that is capped, and cutting the top of the cells that are not capped, and putting an empty super below, the super that has the honey in it will work with us, but it may not with Illinois bees. W. CARTWRIGHT.

Steamboat Rock, Ia., Oct. 20, 1897.

[Your plan sometimes works in Ohio, and sometimes it doesn't; and I suspect this is the case in Illinois.—ED.]

GETTING HONEY OUT OF SUPERS WITHOUT ALLOWING THE BEES TO TOUCH IT.

Mr. Root:—I notice in the Oct. 15th GLEANINGS that Dr. Miller, in Stray Straws, wants a plan to get the honey out of a super without allowing other bees to touch it. That's easy enough. I'll tell you how I do it. When, in taking off supers at the close of the season, I find a colony that is short of stores, I leave the bee-escape on; then when I get ready to have unfinished sections cleaned up, I go to these colonies and remove the escapes from the boards, plugging up the holes with a block having a small hole in it. Then I tier up with unfinished sections or any combs I want cleaned. They are always cleaned out promptly if put on at a time of scarcity when bees would rob. CHALON FOWLS.

Oberlin, O., Oct. 22.

WINTERING SUCCESSFULLY UNDER SEALED COVERS.

I have good success wintering under sealed covers (boards one inch thick) in good chaff hives by placing 10 or 12 inches of buckwheat chaff over them. It should extend three or four inches on each edge of the sealed cover, and be put on before frost. Tell Dr. Miller if he will put his bottom starters on sections in a curve he will have less trouble by their falling over. W. C. SIMONS.

Arlington, Pa.

BEGINNERS
QUESTION
BY E.R.
ROOT.

J. R., Cal.—Without knowing more of the conditions it would be impossible for me to tell just why your bees leave the hive at this time of the year — October. If they have honey, brood, and eggs, the circumstance is very unusual. It might be well to investigate and see whether mice or other vermin have access to the hive. Sometimes bees will desert the hive because of this.

D. N. R., Ohio.—I omitted telling you how to get rid of the small worms that are on your honey. One way is to burn sulphur in a tight room where the honey is; and another way is to purchase about a dime's worth of bisulphide of carbon and let it stand in an open vessel, and evaporate; but some have said the bisulphide of carbon injures comb honey, and I would therefore advise you to use the sulphur instead.

A. B. M., Fla.—There are very few bee-keepers in the world who keep anywhere near 500 or 600 colonies, and perhaps two or three that keep as many as a thousand colonies, and perhaps only one man who keeps over that number. As a general rule, there are very few places indeed where it would pay to keep a thousand colonies, and I doubt very much whether it would pay you in Florida to go over 400 colonies, and then you would do well to proceed cautiously. Increase gradually by establishing out-apiaries one by one. It is possible you might be able to manage a thousand colonies; but I would advise you to "go slow."

F. B. J., Ark.—If you expect to move your bees half a mile some time this fall or winter I would advise you by all means to move them before cold weather comes on—the sooner the better. If the temperature outside is not over 60° Fahr. it will not be necessary to put wire-cloth screens over the tops of the hives, removing the covers. Simply nail wire cloth over the entrances, and load the bees into the wagon.

In regard to a place for swarms to cluster upon next summer, in a yard where there are to be no trees, I would advise you to start some low-growing bushes, something that will grow rapidly, and at the same time will act as shade for the bees. The bees will very often cluster on these rather than go off to the woods or some tall tree.

J. L. C., N. Y.—The sample of brood has been examined, and I find it to be a very bad case of foul brood — one of the worst I have ever seen. You are probably familiar with the method of treatment. If not, refer to p. 34 of our catalog, last paragraph or two.

I can hardly think the queen you got of —— could have transmitted the disease. I never knew a case yet where a queen from a diseased colony, when sent by mail in a mailing-cage, would transmit the disease to the colony receiving her. For experiment we have taken queens out of diseased colonies in our apiary, when we had foul brood some years ago, and introduced said queens into healthy colonies, but never any bad results followed. I should be more inclined to think the foul brood came from the colony you purchased in the first place, or else was already present in your vicinity.

W. W. L., Pa.—Yours of Oct. 21 is received, and I have carefully noted all you have said in your letter in reference to the accident to the span of horses by which they were stung to death by your bees as they were going to and fro to the buckwheat-field. First, I would say that you could probably get no help from either Bee-keepers' Union unless you were a member before the accident took place. If you were one, and have been right along, then of course I would lay the matter before one of the Unions at once — that is, to whichever one you happen to belong.

The case involves a good many legal points, and it looks as if, in view of the fact that you had previously warned the boy against driving his horses by at a certain time of day, telling him that there was *danger*, and he disregarded your instructions, the amount of damages, no doubt, would be very much smaller than it would otherwise be. It is possible that the court would decide that, under these circumstances, you were not under obligations to pay any damages whatever. In any case, I would advise you to employ as good an attorney as you can find, and get him to advise you in regard to legal points. If he decides that the case would probably go against you, then you had better settle without recourse to law. Get an attorney who would be *honest* with you, and one who is not hungry for a job; otherwise he may state that there is good fighting ground, and that you had better take the case before the courts, when you have actually "no case." In the mean time I would advise you to be careful about making any promises, or stating what you will or will not do. Just state that you do not care to discuss the matter until you can see your attorney, and yet I believe you mean to do what is fair and right. Later on I should be glad to hear the result of the case; and after the thing is all settled, write it up for these columns, telling how it was adjusted.

By ER Root
Editorial

THIS journal seems to be nearly all editorial matter. We promise not to monopolize so much space next time.

THE last number of the *Bee-keepers' Review* is a good one. In spite of the fact that Bro. Hutchinson has "passed through the deep waters" so recently, he seems able to keep his journal up to its own excellent standard. Most men would be too nearly crushed to be able to do good and creditable work so soon. Bro. H.'s pluck and good sense in going right on with his work in spite of deep sorrows are to be admired. We hope our readers will remember him when they make up a list of papers they will take the coming year.

A POSSIBLE METHOD FOR CONTROLLING FERTILIZATION OF QUEENS.

MR. L. A. ASPINWALL, of Jackson, Mich., has black and hybrid bees all around him; but by clipping a small trifle off from the wings of each queen he has managed to have a much larger per cent purely mated. The idea seems to be that the queens have more difficulty in flying with their wings clipped down, and consequently the mating is restricted to a great extent to the drones around home. By this plan Mr. Aspinwall, according to the *Review*, "has kept the mismated down to one in twelve with clipped queens, while the unclipped average one in four." It is not stated how much Mr. Aspinwall clips off to bring about this result, although mention is made of one queen from which an eighth of an inch had been taken from each wing.

This is valuable; and if equally good results shall be secured by others in a vicinity where blacks and hybrids are predominant, we may feel that we have "gone and done" what has hitherto been regarded as impossible.

A SAD ACCIDENT.

I AM pained to note, by the *Progressive Bee-keeper*, an accident that happened at the factory of the Leahy Mfg. Co. While Mr. Leahy was passing at some distance, a scream and a falling of lumber attracted his attention. Three children—two of them belonging to his partner, Mr. E. B. Gladish, had been trying to climb up on a lumber-pile, resulting in its falling "over on them, crushing the life out of one, while another had a leg broken, and Clifton Gladish was more or less injured. The one killed was little Florence Gladish, a bright sweet child of four years." GLEANINGS extends to Mr. Gladish its sincere sympathies; and while neither he nor any one else can really be blamed, it is one of those unfortunate things that sometimes *will* happen. I have always had great fear that my own boy, always eager to climb up on lumber-piles, might have something similar happen to him. The little tots scarcely realize that a lumber-pile is almost as dangerous as a railroad-track, and yet it is well nigh impossible to keep eyes on them all the time.

FOUL BROOD IN SCHOHARIE CO., N. Y.

I SAID some little time ago that foul brood was making rapid headway in districts where there were more bees and bee-keepers than in most places in the United States, and I had in mind (though I didn't say so) Schoharie Co., N. Y. I am pleased to learn that, through the energetic efforts of the foul-brood inspector, Mr. Frank H. Boomhower, of that county, the disease is being rapidly stamped out; but he fears it is working over into adjoining counties that have just as many colonies of bees in them, but over which Mr. B. has no jurisdiction as inspector; and he hopes that I will put in a warning that bee-keepers in those vicinities may be alive and awake to the danger that may confront them next season. Mr. Boomhower says he has worked every day since he was appointed inspector, and that every yard so far inspected has been affected by it, and that in some instances whole yards are wiped out entirely by the dread destroyer. In one instance he found 51 colonies out of 61 that were rotten with the disease. I think it would be a good idea for the State of New York to have Mr. Boomhower appointed State Inspector. When I visited him early last fall I was much impressed with the thoroughness with which he did every thing he undertook. He thinks foul brood is an awful scourge, and that it should be handled promptly and energetically. And it is this kind of men that make good inspectors.

A BOOK ON PATENTS; THE SMASHING OF THE SECTION MONOPOLY.

J. A. OSBORNE & Co., have just issued a hand-book of patent law. We did the printing, and, *of course*, that part of the work is A No. 1. We are not up on patent law; but Mr. Weed, who is, says he believes this to be the very best hand-book of the kind of any thing heretofore published. It answers most of the questions usually asked by inventors, manufacturers, and patent-owners and users of patents, and further considers what is patentable, etc. A copy of this book can be obtained free on application to J. A. Osborne & Co., 580 Arcade, Cleveland, O. Some of our readers will remember J. A. Osborne in connection with M. D. Leggett, of Cleveland, one of the attorneys who helped to defend us in the suit brought by Forncrook in the famous Forncrook section case. It went through the lower courts, and then it went to the Supreme Court of the United States; and Judge Stanley Mathews declared the Forncrook patent "null and void for want of novelty." This, expressed in ordinary language, simply meant that the one-piece section, which formerly had been selling for seven, eight, and even ten dollars a thousand, was old, and therefore by this decision was made common property; and the result was that other manufacturers commenced making it, and the price finally dropped to $5.00, then to $4.00, then $3.50, then to $3.00, where it now stands.

THE VALUE OF VENEER STRIPS BETWEEN SECTIONS IN A SHIPPING-CASE.

In the *Canadian Bee Journal* for November, Mr. E. Kretchmer makes a point which I am sure is well taken. He says:

> Separators in shipping-cases are, I think, not yet very much used; but I find that, if separators are used, a comb broken from a section, if confined to the space within that section, can not break or deface the next adjoining section; whereas, if the separators are not added, the entire row is frequently broken down. Wood separators are cheap, costing less than 2 cents for a case, while their benefit is more than tenfold. I therefore think that no shipping-case is complete without the separators.

Quite a number of the York Staters use thin veneering stuff between their sections and shipping-cases. In the case of the no-bee-way sections it will be not only a necessity but an advantage to use such veneering; with such sections, if the combs should break down they would have less distance to tumble against the separator, and the consequent damage to the comb would be less.

"GO WEST, YOUNG MAN;" JOE'S PARTNERSHIP.

Some fifteen years ago a young man applied for a position as stenographer at our office. His letter was neatly written; and after some little correspondence the applicant came on. This was none other than Joseph Nysewander.

JOSEPH NYSEWANDER.

He filled the position in our office very creditably for two years, and then, taking Horace Greeley's advice of his own accord, left us to strike out for himself in the great West. He landed in Des Moines, Ia.; and after a little time his name appeared in the advertising departments of the bee-journals as supply dealer and manufacturer. His business kept on increasing until last year, when, to my certain knowledge, he disposed of something like 13 carloads of goods.

The name of Joseph Nysewander and Root's goods have come to be almost inseparably linked together. His place of business on Grand Avenue is shown in the annexed halftone. On the left will be seen a wagonload of hive stuff just as it came from the car, direct from the Home of the Honey-bees.

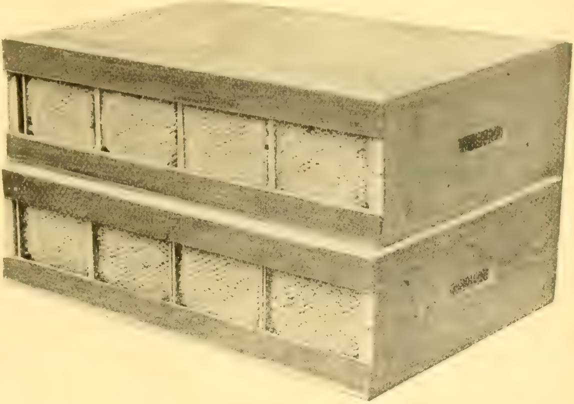
Mr. Nysewander, besides doing a large business in the way of handling supplies, also sells considerable honey.

Now the romantic part of my story comes in. It seems Mr. Nysewander *also* had an application for a position as stenographer. I do not need to go into details; but it is enough to relate that Joe was a bashful bachelor, honest and good, and the stenographer was proficient and pretty. A life partnership was formed, of course, and the business boomed as it had never done before. No wonder he sells supplies.

COMB HONEY IN NO-BEE-WAY SECTIONS, VERSUS COMB HONEY IN OLD-STYLE SECTIONS WITH THE BEE-WAY.

On page 715 I refer to the fact that no-bee-way sections with filled combs seemed to look plumper and nicer than the same comb honey in the old-style sections. To give our readers somewhat the actual difference in appearance I asked one of our men to select eight regulation 4¼ sections from our lot of comb honey. At that time we did not have very nice honey on hand; but he was able to select 8 sections that would average with No. 1 comb honey as it generally runs on the market. These sections were to be as nearly alike as possible. From four out of the eight he was to plane off the bee-ways so that the sides of the sections would be of the same width as the tops, or straight all around. Next he was to put four of them in a shipping-case, and the other four, that he did *not* plane down, in another shipping-case. These were then placed one on top of the other, on a box, where I photographed them, and the result is shown in half-tone herewith.

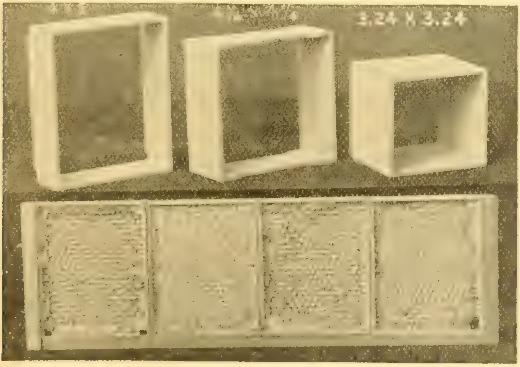
Both cases of sections came from the same lot, and from the same man, and were as nearly alike as could be. In the upper lot you will notice that the comb honey comes nearly flush even with the sides of the sections, and almost up to the glass, but not quite. In the lower lot will be seen the regulation standard section, and it will be noticed that the comb honey stands back in, from ½ to ⅜ inch from the glass of the shipping-case, and to *my* eye, at least, they do not seem to be as well filled out nor do they look as plump full and pretty as those in the top case. You will notice, also, that the fact that the combs stand back half an inch in the lower case gives them a darker shade. The exact difference is not entirely shown in the picture; but, as I have already said, any one can try the experiment with his own honey in his own shipping-cases.



COMB HONEY IN NEW AND OLD-STYLE SECTIONS.

But old-style sections planed down do not give quite the effect of comb honey produced in no-bee-way sections with slatted separators. When the bees go back and forth through the slats in the separators they have a tendency (if my eyes have not deceived me) to fill out the combs a little fuller; and they are also less inclined to leave a hole at each of the four corners. The very fact that, in one-piece sections of regular style, the opening, or bee-way, comes up to within half an inch of the corner, causes the bees to make a hole generally in each of the corners; and that is one reason probably why some York State bee-keepers have preferred four-piece sections. The other reason is that they have bee-ways clear across so they can insert glass.

But another factor in preventing the bees from making holes through the corners of the sections is having the cross-cleats of the separators drop down ¼ inch from the top of the section, so the bees have free passageway clear across the face of the sections, ¼ inch from the top, besides a passageway through the slats from one section to another.



COMB HONEY IN NO-BEE-WAY SECTIONS PRODUCED WITH THE FENCE.

To show you how honey looks in 4 x 5 Danzy sections, with no bee-ways in front, and produced with cleated separators, I reproduce here a cut from Mr. Danzenbaker's book, "Facts About Bees." You will notice that the corners are all filled at the top, and nearly all at the bottom, and you will also notice, owing to the absence of bee-ways, that the sections have a plump nicely filled-out look, such as sections having insets do not have.

THE REVIEW ON THE NO-BEE-WAY SECTIONS.

Since writing the foregoing, the *Bee-keepers' Review* for October has come to hand, and in it I find an editorial that interests me greatly, particularly as it confirms almost every point that I have made in favor of the no-bee-way section.

> SECTIONS WITHOUT BEE-SPACES; THE LATTER BEING FORMED BY THE SEPARATORS.
>
> While on my way home from the fairs I passed one day at the hospitable and pleasant home of Mr. L. A. Aspinwall, of Jackson, the man who furnishes an article each month for the first page of the Review. In his back yard is an apiary that now numbers 50 colonies. During the past season it has furnished him about 3000 lbs. of as fine honey as I have ever seen. A portion of it was yet stacked up on the shelves of his honey-room. A more even or perfectly filled lot of sections it would be hard to find. Mr. Aspinwall has for several seasons used sections without bee-spaces, that is, they are the same width all the way around, the bee-spaces being furnished by metal offsets on the tin separators. There are also openings cut in the separators just opposite the meeting-point of each pair of sections. This gives the bees a freer passageway through the super, and does much to lessen the pop-holes at the corners of the sections. The plump, full, smooth look of sections filled in this manner, without the one-fourth inch of wood standing up above the comb-surface, does much to add to the attractiveness of the sections. It is almost impossible now to sell the old-style of sections to Mr. Aspinwall's customers. This style of section also allows the use of a machine in cleaning off the propolis, by means of which it can be done very quickly and effectually. Mr. Aspinwall uses a super of the knock-down style, with thumb-screws at each end, whereby the sections can be pressed very closely together, and when the season is over these supers can be piled away in very little space; but I won't steal his thunder, as he has promised to illustrate and describe all these things in an early issue of the Review.

The wonder with me has been that so many of the supply-dealers and bee-journals have been so stupid all these years as not to see and know that a no-bee-way section is far superior to the regulation kind with insets at the top and bottom. Why, I almost feel myself like making Bro. Aspinwall a visit to see his honey, and to learn more about his experience with these sections. But as we are promised that he will tell us something about it in the *Review*, assisted by illustrations, we may all, to a certain extent, take a peep into his apiary. Bro. Hutchinson, I wish you would tell Bro. Aspinwall to hurry up with that article, and at the same time hurry up the *Review* that will contain it.

INVENTIONS WHICH ARE IN ADVANCE OF THE TIMES.

IN line with what A. I. R. said in last issue, page 782, the latest issue of *Electricity*, a weekly publication devoted to the science indicated by its name, relates how one Moses G. Farmer exhibited the first operative electric railroad at Dover, N. H., fifty years ago; and, even prior to that time by some twelve years, a Vermont blacksmith astonished the scientific world with the first attempt in that line; but, as the editor of *Electricity* very pertinently remarks, "he and Farmer were too far ahead of the time to make much impress upon it; but during the ten years that have elapsed since the installation of the Richmond road and the Philadelphia meeting, the little horse-railroads, converted into electric systems, have become enormous concerns, carrying annually millions of passengers where they had been carrying hundreds."

With regard to the cleated separators and the no-bee-way section, it would appear that such men as Miles Morton, of Groton, N. Y.; the late B. Taylor, of Forestville, Minn.; Oliver Foster, of Grand Junction, Colo.; Mr. L. A. Aspinwall, of Jackson, Mich.; R. C. Aikin, Loveland, Colo., and K. P. Kidder, were ahead of the times, *but* times were not ready for them. I firmly believe, judging by the correspondence that has come in lately, since I began the agitation of these ideas, that the times are now ripe, and that this cleated separator and the no-bee-way section will go a long way toward crowding the old-style sections with awkward insets into the background. While it is true the A. I. Root Co. may have an "ax to grind," we propose by every fair and legitimate means to push into popularity these two things—not so much for the "filthy lucre" there may be in them, but because they are a real step forward, and, as I believe, will prove to be a real help to the mass of bee-keepers who depend upon bees to a greater or less extent for their bread and butter. While it is true that the pushing of these two things will give the A. I. Root Co. business in certain lines, it can not fail to help other supply-dealers just in proportion to the prominence they place upon these same things that are as free as water, can not be patented, and are old.

But the thought that we have been all these years without the benefit of these two things, when in point of fact we already had them, is almost *provoking*. For years A. I. R. said he would give a large sum of money for a well of soft water on his grounds. Perhaps the offer was larger because he was sure no such water could be found here in Medina, where the water is notoriously hard. But when, a year ago, a well-driller went a little deeper and cased off the upper vein of hard water, an unlimited amount of very soft water bubbled to the surface (with the help of an engine) as much as to say, "Good-morning! I have been waiting here for years for you to let me out and do you good. Why did you not punch a hole through my prison sooner?"

THE NO-BEE-WAY SECTION OLD.

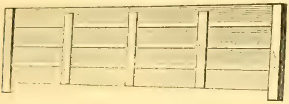
QUITE by accident, as I was running over some of our back volumes I ran across an advertisement of G. B. Lewis, of Watertown, Wis., calling attention to the value of no-bee-way sections. This advertisement appears on page 102 for Feb., 1882—nearly sixteen years ago. Mr. Lewis calls attention briefly to the advantages of such a section; but why bee-keepers did not "catch on" then I can not say, unless it is that they did not know or appreciate the value of cleated separators by which alone such sections could be used. Many and many a time we have gone back to first principles in hive-construction; and it looks as if, in the case of the one-piece section at least, history were about to repeat itself.

TRADE NOTES

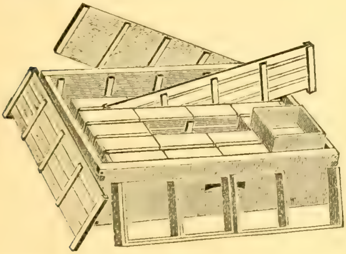
BY EARNEST R. ROOT.

THE NEW SECTION WITH ITS FENCE; NOVELTIES FOR 1898.

The favorable reports that have come in from those who have been using the no-bee-way section and fence (cleated separator) for the last four or five years, together with words of indorsement from some of the greatest apicultural lights in the United States, have decided us to make the new devices regular for the coming season rather than to supply them on option as we at first proposed. Ordinarily it would be good business policy to feel our way by letting the new things push themselves into favor *gradually* rather than to get behind them and push them. Some of the reasons (to recapitulate) that have influenced us to make the fence and the no-bee-way section regular—that is, a part of the regular hive-equipments—are the following :



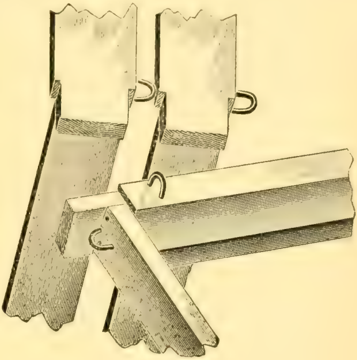
FENCE FOR SEPARATING SECTIONS.



NO-BEE-WAY SECTION SUPER WITH FENCE.

1. The fences are made entirely of scrap, and, consequently, will cost but little more than the old-style separator, which, after being used a year, had to be discarded for a new one. As they will be glued together at the factory by automatic machinery, the bee-keeper will not be bothered to put them together. Those who have used this fence say it is good for years. They are, therefore, cheaper when viewed in this light than the old separators.

2. Prettier and better filled comb honey can be secured with a fence, for the reason that the bees can crawl all through the slats, affording them easy and direct passageways from one honey-box to another. *One great objection to the old-style super with its separators was that it shut off each section box into a compartment or room by itself* ; and, as every one knows, it was much harder to get bees to enter comb-honey supers than supers of the extracting sort. While we * do not go so far as to say that the fence will offer as much inducement for the bees to enter the comb-honey supers as those for extracted, we do believe they afford most substantial encouragement ; and for that reason we *believe* the bees will enter the supers a day or two earlier than they otherwise would.



STAPLED SPACED FRAMES.

3. The peculiar construction of the fence will, we believe, largely do away with the passage-holes in the corners of the ordinary section honey-boxes. I said, " We believe," for we are not positive ; but after looking over lots of honey produced with the fence, and lots with the common separator, we notice the corner holes are much more prominent in the case of old-style sections that have been divided off with the ordinary separator.

4. The fact that the fence is made up of several different slats, bound by transverse strips on each side, and grooved cleats on each end, has a tendeney to very materially stiffen and strengthen the section-holder. In case of the old-style super, the bottom-bar of the section-holder would sometimes sag ; but the new fence is so much stiffer than the separator that we believe it will do away largely with the sagging of the bottom-bars.

5. The new section, when filled with honey, will bring a higher price, because they appear to be and in fact are better filled out, and the surfaces of the combs themselves are more even—at least this seems to be the experience of those who have used such sections with a cleated separator or fence ; for instance, see what L. A. Aspinwall thinks in regard to this —a bee-keeper who has used them for years— in the extract from the *Bee-keepers' Review*, in the editorial department.

6. Facility in scraping these sections with their plain straight edges is quite an important feature. It is not an easy matter to clean out the insets of the ordinary old-style sec-

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* When I use the singular first person, I mean my opinion. When I use " we " I mean the opinion of our company.

tions, and practically impossible to remove the *stain*. A caseknife or a piece of steel having sharp square edges will, with one sweep, clean almost the whole four edges of the new section at once.

7. The new fence and section greatly simplify the construction of the section-holder. The bottom, instead of being scored out to correspond with the openings in the bottoms of the sections, is one straight piece and of the same width as the section itself. The end-bars are also of equal width with the bottom-bar.

8. The new section is only 1½ inches wide, and yet will hold as much honey as the old 1⅞ section with its openings; and consequently the ordinary shipping-case will hold from 15 to 25 per cent more honey, thus effecting a substantial saving in cases to the bee-keeper.

The new section-super with its fence and straight-edge section is shown in the engraving. The section-holder appears in the front with three sections. A fence appears at the end in the super itself. The follow-board is cleated the same as the fence; so also is one side of the super. With what I have already said, the general construction of the super will be plain.

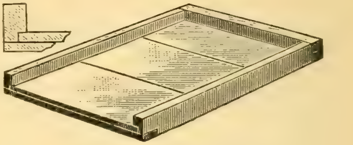
NO-BEE-WAY TALL SECTIONS AND FENCE.

It is evident that there will be quite a demand for deep sections for the season of 1898; and we expect to be prepared to furnish the 4 x 5 Danzy section with no bee-ways, and double-cleated separator, in the Danzy supers. The construction of the Danzy super is such that either the regular Danzy section with one bee-way, and separator cleated on *one* side only, or the 4 x 5 sections no bee-way, and fence cleated on *both* sides. There are also some who would desire to use a deep section with no bee-ways, in their regular supers. We shall be prepared, also, to furnish a section-supporting rack—a device that will both support the sections and add to the depth of the super. These deep sections will be about the size of the Morton. They will be 1½ by 3⅝ by 3¾. The super will be practically the same as Morton's shown in another column. Illustrations will appear in a later issue, that will show the plan.

NEW-STYLE DANZY BOTTOM-BOARD WITH ITS DEEP ENTRANCE.

I have already spoken of the advantage of having large entrances—so large, indeed, that it is not necessary for the bees to cluster out in front in order to keep cool on hot days. I have also shown that clustering out caused by contracted entrances on hot days has a tendency to induce swarming. I have also proved, to my own satisfaction at least, that a large entrance cures, to a very great extent, this clustering out, and will do away with at least 25 per cent of the swarms that now pester and bother us just when we want the bees to work in the supers.

The bottom-board that we have adopted for our regular hive-equipment for 1898 is the Danzy, and is shown herewith. We supplied this on option last season, and the results have been so satisfactory that we have decided to make it regular for the coming year. It is so constructed that the bottom-board may be reversed. One side provides for an entrance ⅜ inch deep, the whole width of the hive; and the other—the side shown to the observer—⅞ inch deep. The shallow entrance may be used during the robbing season. During hot weather, when honey is coming in, the deep side may be used. In the case of the old-style bottom-board, it had to be removed entirely for indoor wintering. But this is not true with the new one, for the deep side may be used next to the hive, and the hive carried into the cellar, bottom-board and all.*



DANZY BOTTOM-BOARD.

STAPLE SPACERS FOR THICK-TOP FRAMES.

I have long known that there was a certain class who do not exactly like the Hoffman frame. They seek something that separates a little more easily in the hive; and in localities where propolis is deposited to any considerable extent, a metal spacer may be preferable. When I stopped at Frank Boomhower's, Gallupville, N. Y., I found he was using staples as side spacers; and when I questioned him about it he said he had used almost every thing; but after having used these for several seasons he was simply delighted with them; and, what was more, his neighbors all around him were beginning to supply their apiaries with them.

For the season of 1898 we expect to equip all our thick-top loose suspended frames with staples. Each lot of 100 frames will contain a suffcient number to staple them as per the engraving. If the purchaser does not care to use spacers at all, he need not put them on. One staple is driven into the top-bar at each diagonally opposite corner. None are used in the end-bars, although they may be so used if desired; but for my part I prefer not to have them. As the heads of the spacers are rounding they admit of the frame sliding into position. The end staple used is the one shown last season, and has given universal satisfaction. We shall be prepared to furnish our customers, on option, this style of frame in preference to the Hoffman, when so ordered.

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* In relation to these points, I find that a writer in the *Progressive Bee-keeper*, speaking of a bottom-board with a deep entrance, says: "First, 90 per cent of robbing is done away with; 2d, with plenty of room under the frame and plenty of store-room at the proper time, swarming is done away with; 3d, bees never lie out on the outside of the hive with a large entrance; and, 4th, when bees can not reach the bottom of the brood-frame on entering the hive they are compelled to crawl up on the inside of the hive, instead of going up between the frames. Thus the supers are entered more readily. All this I claim for the large entrance and plenty of room under the bottom-bars of brood-frames."

NOTES OF TRAVEL

BY A. I. ROOT.

ON THE WHEEL TO THE CELERY-FARM OF WEAN, HORR, WARNER & CO.

On Friday, the 29th of October, I visited the celery-farm of Wean, Horr, Warner & Co. Although the frost did them some damage, their celery had so far recovered that it seemed to my eye a sea of verdure and luxuriance. It was then all banked up for cold weather. All that was visible over the grounds was banked entirely with soil. The rows were, perhaps, five or six feet apart; and from the bottom of the ditch to the top of the rows of celery they must have been some three or four feet high. It was dug by means of a digger — a machine built specially for it. The hilling was also done almost entirely by machinery. Perhaps I should say at the outset that they have grown this year 140 acres of celery; and while everywhere else celery-farms have been greatly suffering from drouth, and many of them worse still by fire in the muck, our friends at Lodi have hardly felt the dry weather. In fact, their ditches, which were, I believe, 90 feet apart, are almost full of water at the present time. Why, it really looked as if it had been raining so as to fill the puddles and ditches at the side of the road. Mr. W. R. Wean informed me they were filled with the water from several springs along the base of the hills at the edge of the swamp.

Perhaps the most interesting object to me was their celery-washing machine. Imagine a great tub with the sides say three feet high, and may be twenty feet across. Inside of this tub is a revolving platform. The platform is either iron rods or very heavy poultry-netting. Of course, the platform is attached to an upright shaft in the center of the tub, and is kept revolving at just the right speed. The celery is spread out on this platform. At three or four different points there are appropriate iron pipes perforated with small holes so as to let a powerful spray strike the celery as it moves under the pipes. By means of a steam-engine and a steam-pump they keep a tremendous pressure on the sprinklers. One man at one side of this big tub pours the celery on the moving platform, and spreads it out. When half way around, another attendant turns it over. If it does not get fairly washed the first time, they let it go around again. Mr. Wean says when the washing is all done by spray the stalks are not bruised and rubbed as they are when a stiff brush is used or where it is washed by hand. You will notice how a root of celery turns yellow where it has been cut, say at its lower end, after it has stood several hours. Well, if the stalk is bruised or handled harshly it will become discolored and speckled throughout its length. The celery washed by the machine is of pearly whiteness, and will keep so several days longer than celery washed in any other way. The machine is the invention of Mr. Wean.

I rode down to the celery-farm on my wheel, with the northeast wind on my back, and it was fine "sailing," I assure you. Going back home, however, the wind was right in my face, and that was not so "fine." Now, here is a hint: When you are going out for a wheel-ride for any considerable distance, choose a day when the wind is at your back, and then you will be quite comfortable, no matter how hard the wind blows. If the wind does not turn around when you come home you will have to get back the best way you can—possibly on the cars.

By the way, I am told that, in some localities, their celery has not only been dried up by the drouth, but that the muck has got on fire, and in some places has burned out to a depth of several feet. Now, my impression is that these ashes would be worth quite a little as a fertilizer next season — at least on certain crops; but I have been told that in some places the ground is made almost worthless for celery or any other crop. Can any of the friends tell us whether this is true?

These people raise onions as well as celery, and it was my pleasure to look over the crop of 70,000 bushels nicely housed in the long rows of onion-buildings. Last year they got a dollar a bushel for their best onions; and with higher prices on potatoes, wheat, and other things, they think their chances good for something like it this year. And, by the way, I learned one new thing about keeping onions. In every lot of onions there are more or less that will sprout in spite of any thing that can be done. These are sorted out and thrown away. Of course, where the quantity is small they can be planted out for bunch onions under glass or in the open air in the spring; but out of a crop of 70,000 bushels the culls or bad onions would be altogether too great in quantity to utilize in this way unless somebody should make a special business of it and supply a special market in some very large city.

OUR HOMES.

> And thou shalt teach them diligently unto thy children, and shalt talk of them when thou sittest in thy house, and when thou walkest by the way, and when thou liest down, and when thou risest up.—DEUT. 6:7, 8.

If our readers will look up this whole 6th chapter of Deuteronomy they will notice that Moses has been exhorting the people to this effect: "Thou shalt love the Lord thy God with all thy heart, and with all thy soul, and with all thy might." Then he goes further and gives the words of our text. And we also notice that he goes *still* further, and says, "Thou shalt bind them for a sign upon thy hand, and they shall be as frontlets between thine eyes."

In the *Rural New-Yorker* for Oct. 30 the editor submits a question to his readers, and below the question he publishes the replies from several different persons. Here are the questions:

BREEDING OUT THE TOBACCO HABIT.

THE BOY AND THE PIPE; TOBACCO AND THE BOY.

> What, in your opinion, is the best way to prevent a growing boy or young man from using tobacco? Would you try to induce abstinence by a rigid prohibition, enforced by punishment, or would you endeavor, from earliest years, to create a distaste for tobacco by explaining its physiological danger to growing youth? In a great many cities, the dangerous effects of narcotics and stimulants are explained in the physiological text-books used in the public schools; yet, in the same cities it is found necessary to pass an anti-cigarette ordinance. What stand would you take in the matter?

I confess I was somewhat surprised to see this subject so boldly taken in hand by an agricultural paper. Other agricultural papers have at different times given us some excellent editorials on the matter of tobacco; but yet the most of them, I am grieved to say, either in the same issue or sooner or later, discuss tobacco culture, and publish articles telling how to manage the plant and the crop, without thinking they have done any thing wrong or out of the way, evidently. This thing has jarred on my sense of right and wrong until I have felt as if I could stand it no longer. Another thing that has jarred *still worse* is that our government has been and is sending out bulletins in regard to the cultivation, gathering, and marketing the crop, without ever a word in regard to its effect on our people. I have eagerly caught hold of the bulletins, and scanned them from beginning to end to see if the learned professor belonging to the agricultural college whence the bulletin seems to have emanated did not somewhere touch upon the effect and the result of encouraging the tobacco industry. Not a word. There is nothing in the whole bulletin — nothing in *any* bulletin I have ever got hold of that seemed to intimate that the man had any sense of right and wrong at all. Perhaps he might say it was not in his province or department to discuss the matter. Now, our bulletins on growing strawberries usually have something to say in regard to the advantage that would accrue to our people, especially the children, if fresh berries were furnished to each family—all they could consume. Why, it is a part of the *government work* to discuss foods and their effects on the health. In fact, I have rejoiced to find of late that we are having quite a good many bulletins telling us how to cook food with economy, and as an aid to good health. Will not these same men—at least some of them—after a while get around to discussing the probable effect of tobacco and cigarettes on the comfort and future welfare of our growing population — especially their effect on the boys? And now, dear friends, perhaps you had better read that question from the *Rural* again, since I have had so much else to say. I have space here to give just one of the replies. It comes from a mother, and it comes nearer to my heart and home because she is an *Ohio* mother :

CREATING THE DEMAND.

> My four children were left fatherless six years ago. Two were boys, one of whom is now 17, and the other 19 years of age. Within the past year the eldest has taken to smoking an occasional cigar. The boys have been warned against the evils of tobacco from their earliest youth. I did not have occasion to punish them then, as they did not use tobacco in any form. I always read to them, or got them to read for themselves, all of the deaths or calamities caused by cigarette-smoking, of which there are so many accounts in the daily papers. But they do not give them a second thought, as they know of boys of their own ages who use the cigarettes constantly, with apparently no evil effects.
>
> The different tobacco firms use every inducement to get young boys for customers. A letter came this week to my eldest son, saying that his name was furnished by the merchant of this place, wanting him to try their particular brand. They also inclosed a coupon, good for one plug of their tobacco, which he was to get free from his dealer, who sent his name. The dealer then would return them the coupon, for which he would receive 10 cents. A laudable enterprise, wasn't it for a general dealer in a small country village? The letter and coupon were taken to the "store" by a very indignant woman, a few questions asked, and a few remarks made. I venture to say that the boy will receive no more coupons from that source. FANNY FLETCHER.

I am making a good many extracts from the *Rural* in this issue, I know, but I want to give just another one, an editorial, where they comment on this mother's reply. Here it is :

> What do you think of that storekeeper, who sent the names of boys to the wholesale dealers in tobacco that samples of their wares might be sent the boys? What would *you* do were it *your* boy? Wouldn't you make some "remarks" to such a dealer? Isn't it about the most contemptible piece of business of which you can conceive? Every decent man or woman with any regard for the well-being of the children of himself or his neighbors should not stop at making remarks, but instantly withdraw his custom from such a disgrace to humanity; this is the only effective way of reaching some dealers. This custom of furnishing names for various purposes is all too common, and they are often furnished for much more degrading purposes than that mentioned. Kill the whole business. In this city—perhaps in others, also—a postoffice box must not be rented to a minor, that much of this sort of thing may be guarded against. The writer was once in a country store in a little town in Michigan. In this store, tobacco was not sold, and signs prohibiting smoking were displayed. And what a contrast between that store and another in the same place where there was no such prohibition! It wouldn't be difficult to say where the best class of customers would go. Encourage the store-keeper with a conscience, and put both feet on the other disreputable or heedless character.

It is several days since I read these things in the *Rural*. I purposely waited, to see if I could find more about this business; and I have tried, too, to look on both sides of the subject. I know it is a fashion nowadays to furnish free samples of goods. Dan White, in our last issue, when he got on to the scheme of giving away samples of his nice honey, had evidently fallen into line with the modern way of doing business. Perhaps we can not really blame the tobacco-dealer for wanting to do what other people do, especially when the greater part of the agricultural papers, and even the government of the United States, discuss tobacco-growing as if it were just as praiseworthy as growing strawberries.

Who, then, is to blame? Why, we are *all* to blame. The daily papers are giving us continually the results of the tobacco and cigarette habit — especially the latter. They do not hesitate to speak right out plainly, and tell what killed the boy, and protest against the whole business. The doctors, the greater part of them, are bold enough to say frankly what the effect of cigarettes is on our boys; but when it comes to banishing or killing out the whole business, government officers and business men seem strangely silent or stupid. They are afraid to say or do any thing, because there is "big money" in it.

I do not know but the people who sell them might give some sort of flimsy excuse, to the effect that a *moderate* use of them by *grown-up* people would not do very much harm—forgetting that practically nobody learns to use tobacco *after* he is of age, but before, when it is illegal to sell to him. This woman would have replied, however, to such an excuse, if it had been presented to her, that the cigarette habit is worse than tobacco or even the liquor habit, in that it can not be controlled to what some people might call "moderation." And even if the vender did refuse to sell to minors, one big boy could purchase enough to supply the whole school;* and I am told that our school scholars are getting them and using them quite freely. Every teacher knows the effect of cigarettes on his pupils—not only on the physical health, but on the mind, which begins to be affected by even a small amount of tobacco. Boys are going to the insane-asylum, and dying in almost every neighborhood, on account of cigarettes. A death has recently occurred among my own relatives, and another is likely to follow soon.

Some may say, "If you do not like cigarettes, let them alone." But the vender is getting the addresses of schoolchildren, and mailing them letters or circulars, with a promise of something for nothing. Boys are curious about the effect of cigarettes, just as they are curious about electricity and other wonderful things that they have seen. Children are folding up make-believe cigarettes in order to have some fun when some one begins to scold and make a fuss. Trifling with any thing which is so dangerous, frightens and alarms me.

One of the writers in this same *Rural* intimates that the best of parents can not always control this thing. They say one boy will grow up steady and temperate while his brother is just the opposite. This may be true to some extent; but I can not help believing that the father and mother can make sure that their boys will never be addicted to these things if they care enough about it. Long before cigarettes were invented, and long before I became a Christian, I was satisfied that tobacco was a stepping-stone to the liquor habit. Both Ernest and Huber commenced remonstrating with people about the use of tobacco almost as soon as they could talk plainly. I had to check them in order that they might not commence on entire strangers on the street in regard to the matter. They had probably heard it discussed so much by their father and mother that they grew up with an aversion to it. I know that, as the years pass by, they bring great changes; but I can not believe that any change can come to pass that will induce either of our boys to use tobacco. I am not boasting of our own children, dear friends—I am only insisting that, if sufficient pains be taken, the matter can be managed.

Where will all this thing end if we do *not* take pains? I see little notices in the dailies, to the effect that the *girls* in some cities are forming clubs where they smoke cigarettes. I do not think this thing will go very far, however, for public opinion—at least the opinion of the intelligent and educated public—will be so strongly against it that a woman will not dare to bear the scorn and disgust that will come from the public at large. I admit that the cigarette business has been given some severe checks; and several times I have thought it was going to be stamped out; but yet in almost every community there can be found some man or boy who says by his actions, if not by his words, "It is nothing to me whether cigarettes kill or cure people. As long as they want them, and there is money in the traffic, I am going to sell them." The laws are helping us some; but, oh dear me! why don't they wake up? The adulteration of food is an outrage on the community, especially when something really baneful is put in it that is supposed to be pure food. But how about feeding our people *opium* under some sort of disguise, because the vender knows, when they get about so far along, they will have it any way, no matter what it costs? If this meets the eye of any of the professors who have charge of our experiment stations and the bulletins emanating therefrom, I should like to have them answer me; and if anybody sees it who has to do with the Agricultural Department at Washington, I wish such party would tell me what they mean by putting out a bulletin on tobacco culture, without any intimation as to whether or not it is a good thing to furnish our people a terribly baneful and poisonous article.

A man was once announced to speak at a farmers' institute in defense of tobacco-growing. He was a pretty good sort of man, except that he was largely engaged in growing tobacco. He stood before the audience for a brief period, looked very red in the face, and then said he did not think he had any thing to say in defence of tobacco, after all. I suppose he discovered that, instead of having an audience of tobacco growers and users, he was confronted by a lot of Christian people.

Now, I have not said very much directly in regard to our text; but I have had this in mind: That nothing in the world can do so much to keep our boys honest and pure and clean as to bring them up in the *fear of the Lord*. Let them listen to Bible-reading and prayer, and that from the lips of the father and mother, every day of their lives. Let the Bible teachings also be made so plain that they will see the bearing, and its practical application on every event of their lives. Do this, and walk consistently yourself, and I have no fear that the children will ever consent to take even a start in using tobacco or strong drink.

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* Since writing the above, an attorney in our employ tells me that one evening, while standing on the street near the postoffice, his attention was attracted by a group of small boys, evidently waiting for and expecting something or somebody. Pretty soon a larger boy approached, opened a package, and distributed among the small boys what he afterward found to be cigarettes.

One word more in regard to our agricultural journals. When I call attention to such inconsistencies as I have in the former part of this article, I have been told several editors are employed on a journal, and they do not always think alike on these things. This will do very well when applied to matters that do not very greatly affect the health, and influence the morals of our people. But when it comes to the matter of encouraging or discouraging the tobacco industry, I should say the editors had better get together, and decide before they start out with the new year, what their journal is going to have to say about tobacco and cigarettes. Surely an agricultural paper can take as bold and decisive a stand as our dailies, that sometimes claim they are obliged to publish every thing — good, bad, and indifferent — because people demand it. May God be praised that we have editors who are not afraid to teach righteousness, purity, and temperance; and, after having so taught, are consistent enough to hold fast to their standard year in and year out.

I have had considerable to say in regard to our periodicals and journals. Everybody expects that, as a matter of course, the *church of God* will stand firm and unwavering in such a matter as this. But I am reminded just now that superintendents of Sunday-schools are often engaged in the sale of tobacco. We have here in Medina, however, one superintendent who banished tobacco from his grocery at the very time he became a Christian. In doing so he banished so many of his old customers that he felt at the time really troubled about it. This was years ago. At the present time I think all will admit he is doing the largest business, and has the finest store of the kind here in the village.

SOME THOUGHTS SUGGESTED BY READING "OUR NEIGHBORS" IN GLEANINGS FOR OCT. 1.

Mr. Root:—Bro. Vincent, of Milan, where I am supplying, handed me a copy of GLEANINGS for Oct. 1st. I was so pleased with Our Neighbors that I read it at home to my people, who declared it beautiful. These sermons must do good. I want you to send me a copy of that number, that I may forward it to a friend who will, I am sure, prize it. If you will, let me pay you for the number in the form of a little poem I have just written, and which you may place in GLEANINGS if you think it worthy.

May God bless all workers who seek to comfort, convert, and elevate. J. POLLOCK HUTCHINSON.

702 Church St., Ann Arbor, Mich., Oct. 28.

PROVIDENTIAL GUIDANCE.

Open the way for me, O Lord, I pray;
Open the way.
Let there be light that I may plainly see,
And faithful prove where thou wouldst have me be.

I have my spindle and my distaff, Lord;
Thy help afford;
Let not the labors of my hand relax,
But let me spin for thee; send thou the flax.

Here is my harp; I can not play aright
To give delight;
Lord, tune the strings; then draw forth music, such
As ne'er responded to musician's touch.

Here is my heart; it, too, is out of tune;
But thou canst soon,
And thou alone, put it in perfect chord,
And life be made an anthem to the Lord.

The concluding stanza of the above poem came home to me. I should be almost afraid to have the dear friends who read GLEANINGS know how often this poor heart of mine is "out of tune." But, praised be the Lord, I have found a remedy. My little prayer, "Lord, help," very soon puts me right. And this suggests a beautiful thought I got from Rev. A. T. Reed. He invited me to speak one rainy evening, at Gustavus, Trumbull Co., O. At the close of my talk he asked for brief testimonials from the congregation. A great part of them arose, one after another, and testified to the power of Christ Jesus. Before he invited them, however, he said something like this:

"Dear Christian friends, please do not make the mistake of holding back just because you do not *feel* like it. Feeling has nothing to do with it. It is Satan's plan, to keep you still. Why, look here. Some morning Johnnie comes downstairs; and when his mother says, in a bright, cheerful tone, 'Good-morning, Johnnie,' he keeps perfectly mum, and does not answer her kind greeting at all. What do you think of Johnnie, even if he does give as a reason for his proceeding that he does not 'feel like it'?"

Johnnie knows very well what he *ought* to do, whether he feels like it or not; and the very best way in the world to get into a cheerful mood is to answer pleasantly and good-naturedly his mother's morning greeting. If he keeps still because he *feels* surly and cross, the chances are that he will be surly and cross all day, or, as our good brother has happily expressed it in the little poem, he will be "out of tune" all day. Now, shall we not all learn a lesson from Johnnie? Let us be pleasant and courteous and kind when we get up in the morning, because it is our duty so to do, especially when we profess before the world to be followers of Christ Jesus. Our feelings really have nothing to do with it; and, in fact, if we behaved ourselves in a Christianlike manner only when we *felt* like it, we should be very poor Christians indeed. You know the old hymn,

"Am I a soldier of the cross," etc.

Health Notes.

HEALTH WITHOUT MEDICINE.

Dear Bro. Root: — About twelve months ago you wrote some articles in GLEANINGS about "Health without Drugs;" and after telling your readers of the Salisbury water cure you immediately mentioned a book entitled "The True Science of Living," by Dr. Dewey. Feeling impressed that that book was worth getting I sent to America for it; and, having read it, I decided to give the method a three-months' trial.

I may state that I am forty-six years of age, and have been in the ministry twenty-two years.

When a lad I was not very robust; and from the age of eighteen up to within a year ago I suffered from dyspepsia, having some intervals of rest from dyspeptic troubles during this period. During the whole of those twenty-seven years I was not able to travel with comfort in the train, tram-cars, or back seat of a buggy, being invariably sick; and on the sea I was completely prostrated.

Aug. 29, last year, having read Dr. Dewey's book, I started the no-breakfast plan. That was on Saturday. On the following day, Sunday, I traveled twenty-two miles, preached three times, administered the sacrament of the Lord's Supper, and finished the day's work with a sense of ease and pleasure. I never threw more energy into my preaching up to that time than I did that day.

From the day I started this plan up to the present I have had a clear brain, and have been able to think and study without any feeling of heaviness or fatigue whatever Prior to this I used to feel the need occasionally of an after-dinner nap on account of a dull heavy feeling I had at mid-day. Since beginning the two-meal-a-day method I have not felt the need of such

For the first six weeks or two months I lost flesh and weight, and became somewhat weak in body, yet always clear in mind. After that I soon regained flesh and weight and strength, and have continued in the enjoyment of good health ever since.

The result, after a year's trial, summed up in a few words, is this: Dyspepsia completely gone; ability to eat and digest any thing the appetite calls for; clearness of mind all through; greater energy in preaching than ever before, with no supervening tiredness on Monday; ability to travel with pleasure by train, tram-car, or buggy. (I have not tested it on the sea yet.) The no-breakfast method has been to me good, all good, and only good, and good altogether.

I hope that others may be led to procure the book and read it, and realize like benefits.

Murrurundi, N. S. W., Aus. GEO. A. REEVE.

Dear Bro. R., I thank you for your kind words, and I greatly rejoice that you have found such wonderful help and strength from so simple a remedy. But please pardon me if I suggest that it may not work as well with everybody as it does with yourself; and may I suggest, also, that perhaps a great many of our troubles arise from our eating more than Nature really demands. In any case, omitting the breakfast and cutting off the surplus gave Nature the chance she wanted; and I have several times suggested to Dr. Lewis that *one* of the reasons, certainly, why the beef diet gave such good results was that it entirely removes the trouble of overloading the digestive apparatus; and it also cuts off the harmful fashion of eating sweets and other things between meals. And now a word to our readers:

Dear brothers and sisters, when you smile at the enthusiasm of our good friend away off in Australia, please consider what a wonderful advertisement his letter would have been if he had secured the above result by using some *patent medicine*. May God be praised for the fact that he is not booming or advertising any kind of "doctor stuff." It would hardly do to suggest that his wonderful recovery was through enthusiasm awakened by that book; but it does teach with exceeding plainness that a very little thing may make all the difference between exuberant health and a painful malady. I have heard of great relief being obtained by simply cutting off tea and coffee, and drinking absolutely nothing at mealtimes. Others have found relief by eating dry bread or zwieback; and just now in a neighboring town I am told of wonderful cures that have been brought about by a cereal food cooked four or five hours in a double hot-water kettle. So many people got strong and well on this new health food that the proprietor has been receiving *five dollars* for his kettle and five pounds of the cereal food; and each purchaser was required to sign a contract not to divulge the secret of the method of cooking to any of his friends or neighbors. You may say that, if people get well, the money is well invested; and some of you have even gone so far as to say the same in regard to Electropoise—that, if a man or woman *got well*, the $25.00 was well invested; no matter, either, if it was all through the influence of the imagination. May God help us in our efforts to sift out the wheat when there is so *much* chaff.

Perhaps I should add, in closing, that the book mentioned above can be procured of the Henry Bill Publishing Co., Norwich, Ct. Price $2.25.

HIGH PRESSURE GARDENING

NO KILLING FROST BEFORE NOV. 6.

When we had quite a little frost on the evening of Oct. 7 I began to think this was a bad season for tomatoes, cucumbers, and perishable stuff; but after the tomatoes on the upland began to show that they were not hurt very much after all, I told the boys to take care of them and may be we should have some tomatoes after all. Sure enough, we got our largest picking *after* that first frost. Before the frost, the tomatoes had brought a dollar a bushel; but along about the last of October they became so plentiful everywhere that the price went down to 40 cts. We were actually picking and selling tomatoes until Nov. 6. I have known this to happen so many times before that I rather expected it. Do not be in haste to think your chance is over for the season.

During the past two months we have had a severe drouth. In fact, the wells were dry to such an extent that farmers were coming in from the country to get water from our artesian well; and on my wheelrides I saw men, women, and children carrying water, almost everywhere, until Nov. 1, when we were greatly rejoiced by several days of rain. The sun then came out a little; then it rained again, and now, Nov. 10, every thing is rejoicing. I was just thinking this afternoon that such a condition of affairs would be sure to produce mushrooms; and while I write, a quart strawberry-box heaping full has just been placed on my table.

SWEET CLOVER, AGAIN.

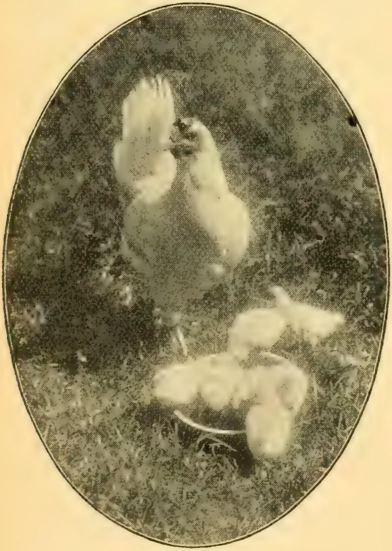
We clip the following from a valued agricultural journal:

> One kind of clover is a nuisance in farming, as, despite its savory name, it has no feeding value whatever. That is the common sweet clover which springs up beside railroad-tracks and other waste places. Cows will not eat it, even when it is young and tender. Bees sometimes visit its flowers, but the honey made from them is greatly inferior to that from white clover.

It seems to me the above is a series of mistakes. First, that it has no feeding value whatever, is surely not true; second, that cows will not eat it, even when it is young and tender. I should like to see such a cow. I have seen cows hunting greedily for it in almost every locality where I have traveled. It is possible, however, that there may be cows like those I found in Florida, that would not eat corn because they did not know what it was for. Once more: In my estimation, and in the estimation of thousands of people, the honey is little if any inferior to that from white clover. I suppose the locality and season may have something to do with it; but wherever I have found large areas of sweet clover, so that the honey was unmistakably from that source, both comb and extracted honey have been beautiful in appearance, and so luscious to the taste that I have called it equal to any made anywhere. Possibly a sample of sweet-clover honey not fully ripened might be disagreeable.

MY CHICKEN STORY; ALSO SOMETHING ABOUT LIFE-LIKE PHOTOGRAPHS, ETC.

One of the pleasantest features of that bright home paper, the *Rural New-Yorker*, is its beautiful and instructive cuts of rural life. It is not altogether the excellent quality of the cuts, but it is the happy selection of subjects and the artistic way in which they are presented; and when we consider that this high-toned family paper is sent once a week for only a dollar a year, it seems too bad that a single family in our land should be deprived of its beneficial influence. One of its happiest efforts in a recent number is a picture of a White Leghorn pullet that commenced to lay when she was 4 months and 16 days old; and at the age of 5 months and 21 days she was the mother of a brood of chickens. I have borrowed the cut; and if our printers bring it out in good shape I hope it will give you a thrill of surprise and pleasure as it did myself when I first saw it. See above cut.



A YOUTHFUL HEN MOTHER.

We clip the following from the *Rural* as descriptive:

> While we are discussing remarkable families of human beings in their relation to agriculture, let us not forget the good hen. In the cut is shown a young hen or pullet which will, probably, take the record for youthful productiveness. This hen is a White Leghorn, bred and owned by O. W. Mapes, the electric hen-man. Mr. Mapes tells the following story regarding this "precocious pullet." If any of our readers have hens that can beat this record, we shall be pleased to give them an opportunity to exploit their pets in our columns.
>
> "This pullet was hatched March 6, with 11 others. They were raised in a small brooder in the woodshed, and about April 15 they were carried to the middle of a three-acre field to keep them away from the back door, as they were very tame. Here they ran with a flock of about 500 younger ones, all eating from one long trough which was filled with feed as soon as possible after the chicks cleaned it, usually two or three times a day. In June she and her ten mates, in company with fifty of the later chicks, were colonized in No. 2 of my small poultry-houses. The surrounding houses were filled with the other younger chicks. There were no old hens nearer than No. 6—about thirty rods away. The pullets laid two eggs in No. 2 July 22, and continued to gain up to August 10, when they laid eight eggs inside the house. About August 15 I found this pullet in an old box in the rear of No. 2, sitting on fifteen pullets' eggs. The soft side of a board was the only nesting-material in use when I found her. I took pity on her and gave her some machine-shavings at once. She must have been one of the first to commence laying, as on August 27 she hatched out eight as bright-eyed chicks as I ever saw, of which she is justly proud, as her picture plainly shows. The feed has always been the same since the day she was hatched, except that a little baking-powder was added the first few days, and then the dough baked into a sort of balanced-ration bread; otherwise the feed has simply been wet with cold water."

Perhaps one reason why I like to look again and again at that picture is that, in my boyhood days, my first craze was for poultry. I sent off and bought a setting of eggs, and I was on hand, you may be sure, when the first chicken hatched. I was in such a hurry to feed them to see them eat, that, hadn't my good mother cautioned me, I might have done them harm; and then I watched their development day by day. I saw every new white feather as soon as it started. Like little pearls they seemed to me; and when the chicks grew older they were so tame I could pick them up at any time and anywhere, and exhibit them to admiring visitors. When the pullets were old enough to lay, with their beautiful red combs and bright eyes, it seemed to me as if the whole face of animated creation presented nothing equal to them. I used to carry them up to the house and show them to mother every few days, with an exclamation something like this: "There, mother! just look at her! and only five months old! *isn't* she a beauty?" When they began to lay it was a question who was the happier—the pullets or their youthful owner.

I remember of having a half-barrel fixed with a faucet so the water would drip just as fast as my biddies would catch it as it trickled down. Then I had the rain water from the roof of my poultry-house run into this barrel, so you see the thing was sort o' automatic. One day when I was at school something in the rain water got into the faucet and stopped the flow of water. It was a hot day, and the biddies, not being able to catch even a drop from their accustomed faucet, began to make investigations, and climb on top of the barrel. They tilted the boards that had been laid on top, boy fashion, and then jumped in to get a drink. When I got home from school, three or four of my precious laying pullets were stiff and cold in the water-barrel. Oh! but wasn't there sobbing and lamenting? As I looked them over and tried to make them stand on their feet as they did in life, it seemed to me I could *not* have it so; and I remember of telling mother that I should have to stay out of school to keep watch of things. Father suggested that some big heavy stones laid on the cover of the barrel would prevent a similar mishap; and he said I had better have some water somewhere else so the chickens would not be absolutely dependent on my new watering-apparatus.

Now look here, boys and girls. This pullet was the mother of eight chickens when she was 174 days old; and, by the way, is it not a little funny that a White Leghorn should want to sit so early in life when the Leghorns are considered as non-sitters? Well, I suppose we could easily breed a strain of precocious pullets. Now, suppose you start a "hen farm" and see how many chickens you can get from one mother, say in just a couple of years. It will be something like my potato experiment where I am trying to determine how many potatoes can be grown from one single tuber in twelve months.

And, by the way, there is a sequel to the above story. The feed that was given these chickens is a new "balanced ration" manufactured expressly for the purpose. The chickens are given all they can eat up clean three times a day. It contains every thing necessary for their health and comfort, and is manufactured by Houston Bros., Middletown, N. Y., so it can be sold at about $20 a ton, if I am correct.

Just as I am closing, my eye glances again at the picture of the youthful mother; and I want to say once more to you all, "*Isn't* she a beauty?" Why, I would give more for that picture made life size, and hung up in my room, than for one of the valuable paintings by the old masters.

Special Notices by A. I. Root.

MEDICINES FREE OF CHARGE.

With the advent of better times, especially better times for the farmers, swindles of all kinds seem to to have revived wonderfully — especially medicines furnished free of charge, to cure certain diseases. Just open your family papers, any of them, and look at the offers—a big case of medicine by mail, postage paid, just for the asking. The editor frequently helps, or at least allows himself to be appealed to. Well, I have quite a lot of these free medicines. Some of them I have taken, and some of them I have not got around to yet. This thing I have discovered, however: As soon as you send for a free bottle of medicine, especially if you tell what ails you, you are flooded with circulars. For instance, I sent for a "sure cure" for asthma. In a few days letters came from different quarters saying they had been informed I was a sufferer from that dread disease; and I must confess that their pleas for a little money were so touching I felt almost sorry for the time being that I did not have the asthma so I could help these medical missionaries in their praiseworthy work of benefiting mankind. Now, look here, my friend: These rascals have discovered that the man or woman who reads the advertisements, and sends for a bottle of medicine free of charge, is one of those who take medicine and are likely to be attracted by every new thing. They send their remedy free of charge, in order to get the names of medicine-buyers, and are certainly reaping a rich harvest or they would not pay hundreds of dollars for the insertion of their advertisement in expensive periodicals. Why, you will see a whole-page advertisement with a picture of the wonderful Smith or Green, who made the discovery, almost as big as life. Judging from my own experience, I do not believe it is healthy business even to *read* medical advertisements and testimonials. It is the Electropoise right over again. No matter what medicine the patient takes, he is restored as if by miracle In fact, a lot of the advertisements do read, "Almost a miracle."

HUMBUGS AND SWINDLES BESIDES ELECTROPOISE AND OXYDONOR.

A new fad has come up in the same line, called "Electrikure." It is the same thing, only cheaper and more ridiculous than any of the others. The silly twaddle about taking oxygen out of the air and introducing it into the body is all gone over. Then follows the usual list of startling testimonials. Circulars have come to us from Florida, California, and other remote places, indicating that they are trying to introduce it where people have not yet been posted. Of course, the thing cures every thing—cancer, consumption, and all other slight ailments of the flesh. One of our correspondents humorously tells us about the reception he gave it, as follows:

Ed. Gleanings:—Not long ago one of those Electrikure frauds made me a visit and left his circular. I gave him a full dose of A. I. R.'s medicine found in Aug. 1st GLEANINGS. It didn't seem to set very well on his stomach, but I have faith to think it will do him good. Inclosed find circular. J. H. HART.

Hanford, Kings Co., Cal., Oct. 29.

And here is another letter on this same subject, which illustrates most vividly how much harm a minister of the gospel may do in letting his imagination run away with his better judgment in regard to such things:

Dear Sir and Friend:—It has been my pleasure to read many interesting letters from you, and I have for a long time wanted to write and thank you for the stand you take with the frauds.

I believe every word you say about Electropoise. Can't you tell us something about Electrikure? There is a minister here *preaching* "Electrikure." I believe him and his machine to be a fake.

Since reading your letters my mind has changed considerably in looking to Christ Jesus for strength and happiness; and before you hear from me again I think I will be a member of the Church. I would have done so before this but for such people as the Electrikure preacher. J. M. LASSITER.

St. Petersburg, Fla., Sept. 24.

ACETYLENE GAS.

In the November *Cosmopolitan* are some facts given about acetylene that conflict with statements made by you in a recent number of GLEANINGS. Prof. Jacobus finds that calcium carbide will have to be furnished for $19.50 per ton to compete with ordinary gas. You say it is as cheap as kerosene at 10 cts. per gallon. I see that calcium carbide is over $80.00 per ton. Now, as you were the first to draw our attention to the new light, we rely on you to see that we are not humbugged. JOHN MAJOR

Cokeville, Pa., Nov. 1.

Friend M., I saw the article you allude to, but I do not believe Prof. Jacobus is posted on all points. The price I gave, 4 cts. per lb., was, if I am correct, the retail price. Carbide will come down in price as the demand increases. One day last week, in passing a hardware store in Shelby, O., I happened to glance through a window, and the beautiful light reminded me of something familiar. I ejaculated to my companion, "Acetylene gaslight, as sure as you live." A crowd was already standing around the apparatus. Four burners lighted up the front part of the store beautifully. Said I:

"Friends, how long has this apparatus been running here?"

A gentleman near me replied, "Just one hour and twenty minutes."

It was the introducer of the apparatus. When I warned the crowd they had better stand back or they would all get blown up, the proprietor of the machine was going to "blow *me* up" until he saw I was just joking. Said he, "How *can* the gas blow anybody up when it is manufactured only as fast as it is consumed by the burners?"

His apparatus, running four burners, cost $60, and he said the expense of the carbide was only half as much as that of kerosene, providing you use kerosene-lamps enough to give *an equal quantity of light.* The flame was very small—much smaller than an ordinary gas-jet—but it diffused a most clear soft white light, reminding one of very bright moonlight. He said the machines were made in Dayton, O., and that he was introducing them into stores just as fast as he could get the machines, and that they were behind with their orders. This was the statement of the agent who sets up the machines. I give it to you for what it is worth. I forgot to ask him the present price of the carbide.

DISCRIMINATING AGAINST HUMBUG AND SNIDE ADVERTISEMENTS.

We are very much pleased to receive the following notice from one of our respectable agricultural papers:

> #### MISSING-WORD ADVERTISEMENTS.
>
> The publishers of *Home and Farm* have accepted several advertisements in which the principal feature is an offer to distribute cash or other prizes to persons who supply letters to complete names given with blank spaces. These were accepted from well-known and reputable advertising agencies; but the course of events seems to justify our excluding advertisements of this character from our future issues, for the good of our subscribers and advertising patrons generally.
>
> Advertisers and advertising agencies interested are requested to take due notice and govern themselves accordingly. HOME AND FARM.
>
> Louisville, Ky.

I have been satisfied for a long time that there was some swindle about all this class of advertising, but I have never taken the pains to investigate just where the humbug came in. A short time ago cash was sent us in advance to advertise a "splendid razor" given to anybody who would send ten cents. We sent the money, and got a very small cake of shaving-soap. When we read the advertisement more carefully there certainly was a very small chance to make out by the wording of their advertisement that all they offered was the *soap* for ten cents I think it behooves every respectable periodical to refuse all advertisements that are purposely made blind

GOING WITHOUT YOUR BREAKFAST, ETC.

In commenting on this "cure" in another column, I omitted to mention that the good people of Battle Creek, Mich., who make the health foods, have practiced for years the two-meal-a-day system. They, however, have a very late breakfast, and a second meal somewhere between two and three in the afternoon. Now, just one thing more: When you are traveling you can save quite a little money by omitting breakfast. Of course, you would have to have your two meals at about the time other folks do; but if, by omitting breakfast, you can save money, save doctor's bills, and feel ever so much better, why not give it at least a trial—especially if you have not got either money or health to throw away?

POTATOES FOR PREMIUMS.

Every person who sends us $1.00 for GLEANINGS may have 25 cents' worth of potatoes as per list mentioned above, providing he asks for no other premium; and every *subscriber* who succeeds in sending us a new name—that is, who introduces GLEANINGS into a family or neighborhood where it has not been going, may have *50 cents'* worth of potatoes. But please remember we can not pay postage on premium potatoes. Selling postage-stamps does not afford very much profit; neither is there very much margin to *give away* postage-stamps as premiums for getting subscribers. Potatoes are so bulky and heavy that it is very much better to have them sent by freight with other goods. As a rule it is expensive business to send them by express. Where you want only a potato or two to put in your garden in order to get a start with some of the newer varieties it may pay very well, especially where you live a long way off, to have them sent by mail or express. But where we *give* them away, please do not ask us to pay postage ourselves. For several seasons a good many have said, "Send me the 25 cents' worth of potatoes by mail. If you can not send a pound, send as many as you can, taking the postage out of the 25 cents." Now, please bear in mind we can not pay *any* of the postage out of the 25 cents. We give you the potatoes freely and gladly, because we want you all to make a test of the new varieties in your locality; but if wanted by mail, send 10 cents per lb. for postage, etc. Our new seed catalog, describing the potatoes and every thing else we advertise, is now ready to mail on application. The two most promising varieties of potatoes, in my opinion, just now, are the Bovee and Manum's Enormous. The Thoroughbred has now been so thoroughly introduced that we offer it for sale right along with the standard varieties and at the same prices.

SEED POTATOES.

The way the best early potatoes are being called for, and by the many inquiries that come from seedsmen and dealers for the best varieties of early potatoes, we imagine there will be a scarcity next spring. In fact, a great many early potatoes grown for seed were this fall sold for table use as fast as they were dug, on account of the large prices that have been offered for them. Our potatoes are all dug and safely put in the cellar—something like 2000 bushels. No rot has yet appeared on any of our potatoes, and we are pouring them out of the boxes and looking them over carefully every week to see that we don't get caught. Our whole lot of 2000 bushels is stored in slatted bushel boxes, thus giving them plenty of air, and affording ease of access in looking them over. Since our last digging we have some more choice seconds. At present we can fill orders promptly for seconds of the following varieties: White Bliss Triumph, Thoroughbred, Early Ohio, Freeman, Monroe Seedling, Sir William—all at $1.50 per barrel, except Monroe Seedling and Sir William. These, while they last, are only $1.25 per barrel. For prices of firsts, see page 756, Oct. 15. We have also a few Bovee and Manum's Enormous, *seconds.* Prices, $1.00 and 75 c respectively.

BEANS AT LOW PRICES.

You will see by our new catalog that we offer two kinds—Best of All and Navy—at $1.25 a bushel. This is because we have a very large stock—not because they are in any way inferior. We also offer Mills' Banner bean, one of the very best field beans ever introduced, for only $2.50 per bushel The two first mentioned are well worth the price asked for a bean for table use.

Light without oil.
Heat without fuel or fire.
Power without belting, pulleys, or shafting.

The first two are already realized in our own home, and the latter is beginning to be realized in our factory. None of these things were realized or thought of fifty years ago. What will the next fifty years bring forth? Who can tell?

DON'T FAIL, Try Again.

Send for our 36-page catalog full of information about bees, hives, bee-fixtures of all kinds, new improvements ahead. Keep up with the times.

A. I. Root Co.'s Goods by the Carload

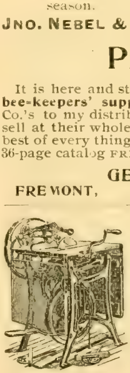
kept in stock. Shipped to you on short notice at less freight. Prepare early for the coming season.

JNO. NEBEL & SON, High Hill, Mo.

Prosperity.

It is here and still coming. So are the **carloads of bee-keepers' supplies** coming from The A. I. Root Co.'s to my distributing points, thus enabling me to sell at their wholesale and retail prices. I keep the best of every thing you need. Send for my illustrated 36-page catalog FREE.

GEO. E. HILTON,
FREMONT, - - - MICHIGAN.



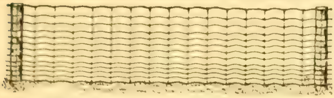
One Man with the
UNION COMBINATION SAW
Can do the work of four men using hand tools in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging Up, Jointing Stuff, etc. Full line of Foot and Hand Power Machinery. *Sold on trial. Catalog free.* 1-24ei

Seneca Falls Mfg. Co.,
44 Water St., Seneca Falls, N. Y.

500 Young Ferrets now ready to ship.

Send for price list of ferrets and pure Italian bees, free, to

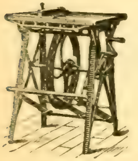
N. A KNAPP, Rochester, Ohio.



A Boundary Dispute.

That is what many line or "party" fences become. "Good fences make good neighbors." Never heard of a quarrel "over, through or under" **Page Fence.**

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.



Read what J. I. PARENT, of Charlton, N. Y., says — "We cut with one of your combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2000 honey-boxes and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalog and price list free. Address W. F. & JOHN BARNES, 545, Ruby Street, Rockford, Ill.

When more convenient, orders for Barnes' Foot-power Machinery may be sent to

THE A. I. ROOT CO., Medina, O.

Moore's Strain of Italian Bees.

Eighteen years ago J. P. Moore, of Morgan, Ky., commenced rearing Italian queens with the object of improvement constantly in view; and, as a result, he is to-day the happy possessor of a strain of bees noted for superior honey-gathering qualities throughout the U. S. and Canada. If you could step into his office and peruse the stacks of testimonials from customers you would soon become a customer too. Descriptive circular sent on application.

FARM BEE-KEEPING.

The only bee-paper in the United States edited exclusively in the interest of the farmer bee-keeper and the beginner is THE BUSY BEE, published by

Emerson T. Abbott, St. Joseph, Mo.

Write for *free sample copy now.*

CHAS. ISRAEL & BROS.,

486, 488 & 490 Canal St., Corner Watts St., N. Y

Honey and Beeswax.

Liberal Advances Made on Consignments.
Wholesale Dealers and Commission Merchants.
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Parties in the West having alsike, red, or white clover seed to sell may please make offers. We wish a few more choice lots of each. Address

Jos. Nysewander, Des Moines, Iowa.

Queens, Untested queens, 50c each; tested, 75c; Breeders, $2. Either leather or golden. My golden breeders breed all 5-banded bees.

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Simple, Perfect, Self-Regulating. Thousands in successful operation. **Lowest priced first-class Hatcher made.** **GEO. H. STAHL, 114 to 122 S. 6th St., Quincy, Ill.**

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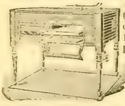
is the standard machine for hatching strong, healthy



chicks. Self-regulating, patent turning trays, drying room for chicks, non-explosive lamp—just a few of its good points. Sold under positive guarantee to work perfectly. Beautifully made and durable. Our 128 page catalogue describes them fully; tells many things about poultry raising you should know. Mailed for 6 cts.

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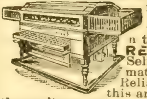

in all the many shows in which it has participated, there must be something in the superiority claims of the **RELIABLE INCUBATOR** Self regulating, entirely automatic, you put in the eggs, the Reliable does the rest. All about this and many things of value to the poultry man in our new book. Send 10 cts. for it.

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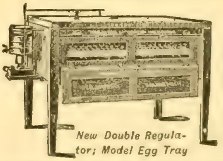

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New Double Regulator; Model Egg Tray

"NEW AMERICAN."

Want Our Catalogue?

It's a pretty book of 68 pages, finely Illustrated; worth dollars to every poultryman. A 2c stamp gets it.

GEO. J. NISSLY, SALINE, MICH.

SPECIAL NOTICES FROM BUSINESS MANAGER

BEESWAX.

The market for beeswax has held up remarkably well this fall, so that we are justified in going back to the prices which we paid all last spring—25 cts. cash, 27 in trade, for average wax delivered here. We expect to need 50 to 60 tons of wax the coming season, and can therefore use all the pure beeswax you can send us. For choice clean bright yellow we usually pay an extra cent or two.

THE PLAIN (NO-BEE-WAY) SECTIONS AND HOLDERS WITH FENCE, OR CLEATED SEPARATOR.

In another column you will find a description and illustration of the new plain section-holder with fence and plain section. These plain section-holders for the regular 4¼x4¼x1½ plain section, which, when filled with honey in connection with the fence, hold a scant pound, are of stuff ¼ inch thick for ends and bottom, dovetailed at the corner, and 1½ inches wide. They are 17½ inches long, outside measure; and to use them in the regular super a piece ⅜ thick at the bottom edge, and tapered to a sharp edge at the top, is nailed into the super ends, the tin strip projecting at least ¼ inch further in than this cleat. The beveled cleat guides the plain section-holders into place, and they and the fence are supported on the tin strip.

The fence is made up of four slats lengthwise, and grooved and cross cleats, as shown, all put together with glue, in a machine specially constructed for the purpose. These fences will, of course, be made slightly different for use with various styles of surplus arrangements. For instance, the regular fence used with plain section-holder could not be used without alteration in the T super. It will also require changing slightly to be used with plain sections in the old-style slotted section-holder. Likewise the 4x5 section will require a somewhat different fence. In view of this it will be quite necessary, when you order the fences separately, to be very particular to designate for what style of surplus arrangement they are to be used. The price of the plain (no-bee-way) sections will be the same as any other style of the same size. The price of the plain section-holders will be $1.00 per 100; and the double or single cleated fences we expect to supply at $1.00 per 100, all put together. We will not furnish them not put together, as very few would have the facilities or skill to put them up properly, and compete with our automatic gluer. Our system of hive-numbering will remain the same as last season, with the idea of designating-letters carried still further. The letter P for plain sections and holders, added to the hive number, will indicate that the super is to be fitted with plain section-holders and fences. The letter Q will indicate that the supers are to take 4x5 sections in plain section-holders with fences. R will indicate a super with rack as used by Miles Morton, and sections 3⅝x5 with fence. S will indicate the old-style arrangement with slotted section-holders and separators. T will indicate the T-super arrangement for 4¼ plain sections and thumb-screws.

AD52P, AD52S, and AD52T will be the same price as hive listed in our catalog as AD52. That is, hives equipped with the new sections and fences will be the same price as the regular hives last season. AD52Q and AD52R, having deep supers, will be 5 cents each extra. Such a hive two story, as AD522Q and AD522R, would be 10 cents each extra. Hives will be furnished with the staple-spaced thick-top frame instead of the Hoffman at the same price.

PATENTS PROCURED PROMPTLY
AT REASONABLE RATES
By J. A. OSBORNE & CO.,
PATENT LAWYERS,
579 The Arcade, CLEVELAND, O.
CALL OR WRITE. ADVICE FREE.

Christmas Present.
54 sq. inches "Mending Tissue" for binding or mending fine Silk and Dress Goods, Kid Gloves in a fourth the time of needle and thread.
15 sq. inches fine Transparent Adhesive Paper for mending books, documents, bank bills, etc.
9 sq. inches Best Medicated Court-plaster.
25 sq. inches "Never Stick" to hold your postage stamps from sticking together.
ALL inclosed in neat LEATHERETTE pocket-case. Sent by mail to any address for 12c.
HANDY MANUFACTURING CO.,
432 Lafayette Ave., Detroit, Mich.

"THE KING"
Windwheels.
For Power or Pumping,
the Best in the World.
Six-foot wheels doing work usually done by 8-foot of any other make. Also best of galvanized towers to go with them.
Write for particulars to
C. O. WEIDMAN,
Medina, = Ohio.
Mention this paper.

Wants and Exchange Department.

WANTED.—To exchange 140 colonies of bees, with all fixtures belonging to a first-class apiary, for good horses and mules.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange 65 volumes Scientific American, volumes 1, 2, 7, 8, 9, 15 to 33 inclusive, 36 to 77 inclusive, unbound, good condition, for bicycle, view camera, firearms, or offers.
J. E. HAMMOND, Oxford, Mass.

WANTED.—To exchange non-drip shipping-cases, in flat, without glass, at 6 cents each; also beehives, either in flat or made up, for white clover or buckwheat extracted honey.
J. M. KINZIE, Rochester, Oakland Co., Mich.

WANTED.—One saw-mill, feed and shingle mill.
W. S. AMMON, Reading, Pa.

WANTED.—To exchange a 1⅜-in. saw-mandrel 4 ft. long, 50-lb. balance-wheel, also 1 steam-pump (Knowles), ½-in. discharge, for larger pump or other machinery.
P. KROEGEL, Sebastian, Fla.

WANTED.—To exchange choice nursery stock, vegetable seeds (every variety), and hand wheel-hoe and cultivator, for extracted honey.
Golden Rule Nursery, Box 206, Hartford City, Ind.

WHAT will you offer for one b-flat cornet and case, also one e-flat alto, good instruments, practically new? Address Box 321, Clifton, New York.

CONVENTION NOTICE.

The next meeting of the Central California Beekeepers' Association is to be held at Selma, Wednesday, Dec. 1, 1897.
W. A. H. GILSTRAP.
Caruthers, Cal., Nov. 1.

THE S. & H. CO.
desire to enter into correspondence with all contemplating the purchase of anything in their line. They think they have one of the most complete assortments of strong, smooth, healthy,

FRUIT AND ORNAMENTAL TREES

Small Fruits, Vines, Shrubs, Roses, Bulbs, Hardy Herbaceous Plants Greenhouse Stock, Etc., on the market and invite all buyers to come and see for themselves. They are to be found at the old stand where they have labored faithfully for the past 43 years to build up a reputable business. Catalogues free.

Address **THE STORRS & HARRISON CO., Box 8 Painesville, O.**

BEE-SUPPLIES.

We have the best-equipped factory in the West. Capacity —one carload a day; and carry the largest stock and greatest variety of every thing needed in the apiary, assuring **best** goods at the **lowest** prices, and prompt shipment.

Illustrated Catalog, 72 Pages, Free.

We also manufacture Tanks of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free.

Address **E. KRETCHMER, RED OAK, IOWA.**

I. J. STRINGHAM,
105 PARK PLACE,
NEW YORK,

keeps in stock a full line of popular

APIARIAN SUPPLIES,

which are first-quality, both in material and workmanship.

Celebrated Wisconsin Basswood Sections, Dadants' Foundation.

HONEY-JARS, 1-lb., square, with corks, $4.50 a gross; discount on quantity.

Catalog free, giving discount for early orders.

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SEE THAT WINK?
BEE SUPPLIES.

Root's Goods at Root's Prices.

Pouder's Honey-Jars and every thing used by bee-keepers. Low freight rates; prompt service. Catalog free.

WALTER S. POUDER,
162 Mass Ave., Indianapolis, Ind.

Write to above address for catalog and freight rates, and see how much money Pouder can save for you.

BURPEE'S
SEEDS GROW!

Write a postal card **to-day** for
Burpee's Farm Annual for 1898.
Brighter and better than ever before.
W. ATLEE BURPEE & CO., Philadelphia.

IF YOU have good white-clover honey to sell correspond with

HAYES, BLAIR & CO.,
120 Broadway, Cleveland Ohio.

NOT FOR SALE. Why do the largest bee-keepers in the world use Bingham Smokers and Uncapping-knives 19 years? Such men know a best thing when they use it. While we have the only exclusively smoker-factory in America, we don't advertise it. It is not for sale. But we do, and have 19 years, made exclusively Bingham smokers and honey-knives. If you get a high-priced Bingham smoker and honey-knife you will have the best as long as you take good care of them. They never go out.

T. F. BINGHAM, Farwell, Mich.

"1st Premium at 7 State Fairs."

Our Gray Carniolan and Golden Italians have taken first premium at seven State besides many county fairs this year. To please and to keep all customers is our motto. Best breeding and imported queens always on hand. Price list free.

F. A. LOCKHART & CO.,
LAKE GEORGE, NEW YORK.

The A. I. Root Co.'s Goods At Their Prices.

Including their discounts for goods wanted for use another season. It will pay you to send me list of goods wanted.

Cash for beeswax.

M. H. HUNT,
Bell Branch, Mich.

Two Papers for the Price of One.

The **Farm Journal**, of Philadelphia, a monthly agricultural journal of 16 pages, sent **One Year Free** for one subscription to **Gleanings**, with $1.00, paid in advance, either new or renewal. In the case of a renewal, all arrears, if any, must be paid in addition to one year in advance.

The Farm Journal is now in its 20th volume, and takes the lead among all the *low-priced* agricultural journals of this country and of the world. It gives no chromos, puffs no swindles, inserts no humbug advertisements, lets other folks praise it, and makes good to subscribers any loss by advertisers who prove to be swindlers. The editor was born on a farm and reared at the plow-handles, and the contributors are practical men and women.

The regular price of this excellent journal is 50 cents a year, and it is well worth it; but by special contract with the **Farm Journal** we are enabled to make the above very liberal offers.

THE A. I. ROOT CO., Medina, Ohio.

A Bargain!

Only $1.50. We have made arrangements to furnish **THE OHIO FARMER**, of Cleveland, Ohio, and GLEANINGS IN BEE CULTURE, both papers, for only $1.50.

The Ohio Farmer is well known as one of the very best, largest, and among the leading agricultural papers of America. A 20-page, 80-column paper EVERY WEEK in the year; employs THE VERY BEST WRITERS that money can procure; a strong, fearless defender of the agricultural interests of this country, and CLEAN in both reading and advertising columns. IT HELPS MAKE THE FARM PAY.

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Weekly.

BOTH ONE YEAR ONLY $1.25.

By special arrangement with the publishers, we are enabled to offer the American Agriculturist in combination with GLEANINGS IN BEE CULTURE at the unparalleled low rate of $1.25 for both papers one year. The American Agriculturist is published in five editions. The N. E. Homestead, the Eastern, Middle, and Southern editions of American Agriculturist, and the Orange Judd Farmer. Each contains matter relating to its own locality, as well as the latest and most accurate market reports for the country in general. It has departments relating to all branches of farming, articles written by the most practical and successful farmers, supplemented with illustrations by able artists. Short stories, fashions, fancy work, cooking, young folks' page, etc., combine to make a magazine of as much value as most of the special family papers.

A sample copy will be mailed FREE by addressing AMERICAN AGRICULTURIST, Columbus, O., or New York, N. Y.

TAKEN separately these two papers cost $2.00, consequently every subscriber under this offer will get

$2.00 IN VALUE FOR $1.25.

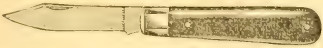
Premium Books. For 10 cents extra, as postage, you can have your choice of any of the following standard books FREE: "Profits in Poultry," "Farm Appliances," or "Farmer's Almanac" (ready December 15). Send your subscriptions direct to

THE A. I. ROOT CO., Medina, Ohio.

Pocket-knives Free.

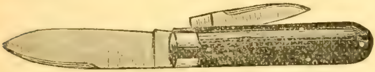
A Rare Opportunity to Secure Good Pocket-knives.

In preparing this list of pocket knives we have selected only the best American hand-forged blades, which are warranted to give good service, and not flashy imported trash, which generally proves to be a mere shuck and poor meat. These knives are made of the finest crucible steel by *American* workmen, carefully tempered and sharpened, ready for use, and *warranted* free from flaws, and firm in temper, but not made for screw-drivers, chisels, or nail-pullers.

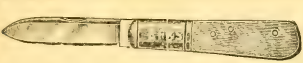


Boy's American Knife, No 150, one blade, sharp point; length, closed, 2½ inches. Each 10c; doz. $1.10; postage, each, 3c.

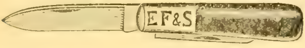
Boy's American Knife, No. 10½, one blade, same as above, but round point. Just the thing for little fellows. Each 10c; dozen $1.10; postage, each, 3c. Two of either the above free for your own renewal with $1.00.



Boy's Knife, No. 252, two blades; length, closed, 3 inches, iron lined, ebony handle; just right for a boy who has become too big for a one-bladed knife. Each 20c; dozen $2.25; postage, each, 3c, or three free for one new subscriber and your own renewal, with $2.00, or one free for your own renewal with $1.



Barlow Knife, No. 170E, one blade; length, closed, 3¼ inches. This knife has been our leader for years, and is still as good as ever. Each 15c; ½ dozen 80c; dozen $1.50; postage, each. 4c, or five of the above knives free for one new subscriber and your own renewal with $2.00, or two given for your own renewal with $1.05.

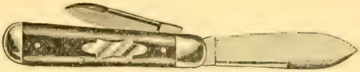


Barlow Knife, No. 270E, two blades, otherwise as above. Each 25c; ½ dozen $1 30; dozen $2.50; postage 4. Three of the above knives *free* for one new subscriber and your own renewal with $2.00, or one free for your own renewal with $1.00.

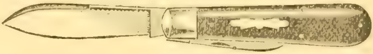
Our No. 209 "Rustler" Knife, one large spear-point blade; length, closed, 3½ inches; ebony handle; the best one-bladed knife on the list. Each 20c; ½ dozen $1.15; dozen $2.25; postage, each, 5c, or three free for one new subscriber and your own renewal with $2.00, or one free for your own renewal with $1.00

Our No. 236 Farmer's Knife, two blades; length, closed, 3½ inches; almost the same thing as the "Big Bargain" knife we sold some years ago, which we were at that time unable to replace, and consequently were obliged to drop from our lists. We should take pleasure in taking Uncle Sam's place and present you these handsome knives ourselves. We can furnish this knife in either clip or spear point, at the low price of 30c each; ½ dozen, $1.60; dozen $3.00; postage, each, 5c. Three given for one new subscriber and your own renewal with $2.15 or one for your own renewal with $1.05.

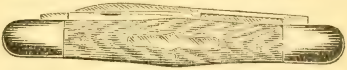
Our No. 235 "Renewal" Knife. Like the above cut, but no shield on the handle. There's surely 25 cents' worth in this knife. It has two strong blades; length, closed, 3½ inches. We expect to give hundreds of these knives. Each 25c; ½ dozen $1.30; dozen $2.50; postage, each, 5c, or three free for one new subscriber and your own renewal with $2.00, or one free for your own renewal with $1.00.



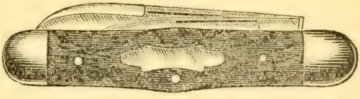
Our Excelsior Knife, No. 46, two blades, brass lined, German-silver tips, cocoa handle. This knife is usually sold for 60 to 75 cents. We bought 57 dozen of them, which is ample explanation for the price we make. Each 40c; ½ dozen $2.00; dozen $3.75; postage, each, 5c, or two free for one new subscriber and your own renewal with $2.00, or one given for your own renewal with $1.15.



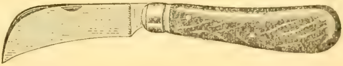
Our Hard-service Knife No. 878, two blades; length, closed, 3¾ inches; brass-lined, German-silver tips; the large blade is extra strong and wide; either ebony or cocoa handle. A knife that hunters and farmers will appreciate. Each 45c; ½ dozen $2.50; dozen $4.50; postage, each, 5c. Two given for one new subscriber and your own renewal with $2.15, or one given for your own renewal with $1.20.



Medium Diamond Knife, No. 0213, two blades; length, closed, 3½ inches; same shape as No. 2255, but not quite so thick; bone, cocoa, or ebony handle, inlaid. Each 45c; ½ dozen $2.40; dozen $4.60; postage, each, 5c, or two given for one new subscriber and your own renewal with $2.10, or one given for your own renewal with $1.20.



Our Diamond Knife, No. 2255, two blades; 3½ inches long, closed; diamond-shaped handle, large in the middle, gracefully curved to the end; blades are razor steel, hand-forged; brass-lined; German-silver tips and ebony handle. Each 50c; ½ dozen $2.50; dozen $4.80; postage, each, 5c. Two given for one new subscriber and your own renewal with $2.25, or one given for your own renewal with $1.25.

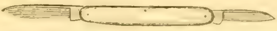


Our Hawk-bill Pruning-knife, No. 714; length, closed, 4¾ inches; heavy blade; cocoa handle, steel capped and bolstered. Each 50c; dozen $5.75; postage, each, 6c. Two given for one new subscriber and your own renewal with $2.25, or one given for your own renewal with $1.25.

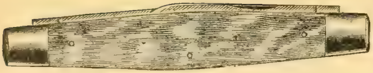
Medium Pruning-knife, No. 725. This knife has a hooked blade about the same size as No. 714, but not quite so thick, and handle not capped. Each 35c; dozen $4.00; postage, each, 4c. Two free for one new subscriber and your own renewal with $2.00, or one given for your own renewal with $1 10.

Small Pruning-knife, No. 000. This is a smaller knife, made for pruning; can also be used for a pocket-knife. Each 25c; dozen $2.75; postage, each, 4c. Free for your own renewal with $1.00.

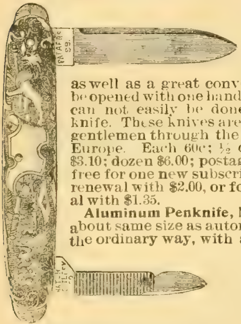
Pen-knives.



Ladies' Pen-knife, No 213, two blades, ivory handle; length, closed, 2½ inches; brass-lined; blades, extra-fine steel. The illustration does not do this knife justice. The same knife we formerly sold for 35 cents. Each 25c; ½ dozen $1.40; dozen $2.70; postage, each, 3c, or three free for one new subscriber and your own renewal with $2.00, or one free for your own renewal with $1.00.



Queen-cell Knife, No. 278-N, two blades; brass-lined; German-silver tips; extra-fine steel; length, closed, 3 inches. We have this knife made expressly for us, and branded with our own name. You can't buy it at any other place on earth. It's the neatest pocket-knife made—a handsome present for either ladies or gentlemen. Excellent for cutting out queen-cells. Each 35c; ½ dozen $1.80; dozen $3.75; postage, each, 3c. Two free for one new subscriber and your own renewal with $2.00, or one free for your own renewal and $1.10.



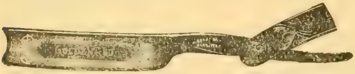
Automatic Knife. "Just touch the button, and the blade opens." Aluminum handle, two blades, 3¼ in., finest razor-steel blades. This knife is a great novelty as well as a great convenience, as it may be opened with one hand—something which can not easily be done with a common knife. These knives are used by ladies and gentlemen through the United States and Europe. Each 60c; ½ dozen $3.10; dozen $3.10; dozen $6.00; postage, each, 5c. Given free for one new subscriber and your own renewal with $2.00, or for your own renewal with $1.35.

Aluminum Penknife, No. 328, two blades about same size as automatic, but made in the ordinary way, with aluminum handle; blade extra-quality steel. Buy one of these knives and you will always have a sample of the new metal aluminum) with you to show your friends. Each 25c; ½ dozen $1.30; dozen $2.50; postage, each, 2c. Three free for one new subscriber and your own renewal with $2.00, or one free for your own renewal with $1.00.

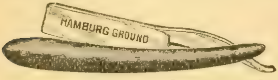
Razors.

We have barred all German corn-knives from this list, and offer razors that we know are good. Postage on all razors 5c each, or sent registered for 13c. All razors positively guaranteed to be as represented.

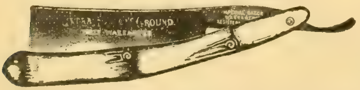
No. 126. Our "Panic" Razor, ⅝ inch blade, square point. Nothing better for the price. Each 75c, given for one new subscriber and your own renewal with $2.00, or your own renewal with $1.50.



No. 455. Goldenrod Razor, ⅝-inch blade; full hollow ground; quality and finish, super extra; none better on earth for the price. Each $1.75. Given for two new subscribers and your own renewal with $3.50, or your own renewal with $2.50.



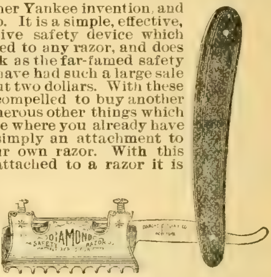
Our Hamburg Razor. Ground rattler razor, full hollow ground, best of steel; square pointed; warranted. This razor is usually sold at $2.00 by retail merchants. Each $1.25. Given for one new subscriber and your own renewal with $2.50, or your own renewal with $2.00.



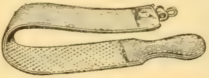
No. 502. "Crescent" Razor, ⅝-inch blade, extra hollow ground; fancy celluloid handle; a beauty. Each $1.50. Given for one new subscriber and your own renewal with $2.75, or your own renewal with $2.25.

No. 03647. Wostenholm's New Pipe Razor, ⅝-in. blade; finest quality, hollow ground; a little gem, and a dandy shaver; no better steel put in a razor. Every one likes them. Each 90c. Given for one new subscriber and your own renewal with $2.15, or your own renewal with $1.65.

Bridle Your Razors.—The Diamond Razor-guard.



This is another Yankee invention, and a good one too. It is a simple, effective, and inexpensive safety device which can be fastened to any razor, and does the same work as the far-famed safety razors which have had such a large sale of late at about two dollars. With these you are not compelled to buy another razor and numerous other things which are of no value where you already have a razor, but simply an attachment to attach to your own razor. With this little device attached to a razor it is impossible to cut one's face while shaving, no matter how hurried you are. We have purchased a quantity at prices so we shall offer them at the low price of 25c each or $2.25 per dozen, or will give one free for your own renewal with $1.00. Full sheet of directions accompany each one.

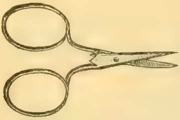


No 50. Swing Razor-strop. Nothing better for the purpose. Each 25c, postage 5c. Given for your own renewal with $1.00.

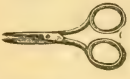
Swing Razor-strop, made of extra heavy genuine horsehide; buffed leather; fine woven web; strong sewed leather handle; plated swivels. Each 45c, postage 5c. Given for your own renewal with $1.20.

Monarch Razor-strop, four sides; combination hone and belt; padded leather cushion; solid leather; brass side, inlaid hone, screw handle. Each 45c, postage 10c. Given for your own renewal with $1.20.

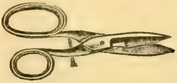
Scissors and Shears.



Lace-scissors, No. 858, 3½ inches in length; best quality of steel, highly nickel-plated; also used for clipping queens' wings. Each 25c; doz. $2.60; postage, each, 3c. Given for your own renewal with $1.

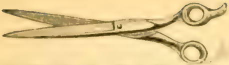


Ladies' Scissors, No. 400, 4½ inches in length; superior quality; warranted extra-fine; nickel-plated; nothing better. Each 35c; dozen $3.60; postage, each, 3c. Given for your own renewal with $1.10.



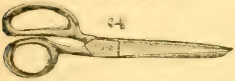
Button-hole Scissors, No. 800, 4¾ inches long; blade beveled; has screw on the side, adjustable for cutting different sizes; polished. Each 50c; dozen $5.00; postage, each, 4c. Given for your own renewal with $1.25.

Button-hole Scissors, No. 825, 5¼-inch. Positively the best made; extra cast steel, beveled edges, crocus finish, full nickel-plated, with tension spring; adjustable to any hole. Each 75c; dozen $8.00; postage, each, 5c. Given for one new subscriber and your own renewal with $2.00, or your own renewal with $1.50.



Barbers' Shears, 7-inch, extra-fine steel; warranted to be of superior quality; are full nickel-plated. Each 60c; dozen $6.50; postage, each, 5c. Given for one new subscriber and your own renewal with $2.00, or your own renewal with $1.35.

Barbers' Shears, 8-in., as above. Each 65c; dozen $7.00; postage, each, 5c. Given for one new subscriber and your own renewal with $2.00, or your own renewal with $1.40.



"Big Bargain" Shears. In consideration of the large quantities of Leader shears we have placed on the market during the past few years one of the largest shear-manufacturers has offered us shears made of solid steel, hardened and tempered (strictly firsts) at a price so we can furnish them at prices we formerly asked for seconds. The blades are put together with the Hatch patent bolt, as shown in cut. By the use of this invention there is no thread in shear; and with the brass nut, which is softer than screw, there is no chance for the thread-stripping. At the same time the rubber washer gives elasticity sufficient to allow the blades to move smoothly without grinding one another on the cutting edge. Each pair is full nickel-plated. Below we list five sizes at prices within the reach of all:

BIG-BARGAIN SHEARS.

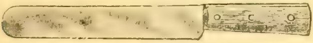
Num.	Size.	Each	½ doz	Doz.	Post.	Renewal and
1	6½-in.	.25	1.30	2.50	.06	1.00
2	7-in	.30	1.55	3.00	.06	1.05
3	8-in.	.35	1.75	3.40	.07	1.10
4	9-in.	.40	2.00	3.90	.08	1.15
5	10-in.	.50	2.50	4.90	.10	1.20

Ten per cent off the dozen rates in lots of three dozen of a kind.

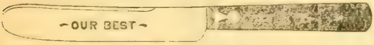
Knives and Forks.

All these goods are standard, being known as "full tang," i. e., the steel of the blade extending *entirely through the handle*, thus giving the greatest attainable strength and durability.

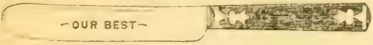
Six knives and six forks constitute a set. All forks have three tines. All blades and tines are steel.



Knives and Forks, No. 1308, cocoa handles. Per set, six knives and six forks, 45c; postage, per set, 24c. Two sets given for one new subscriber and your own renewal with $2.15, or one set given for your own renewal with $1.20.

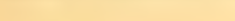


Knives and Forks, No. 11756; cocoa handles, with bolster; best quality. Set, six knives and six forks, 90c; postage, per set, 30c. Given for one new subscriber and your own renewal with $2.15, or your own renewal with $1.65.



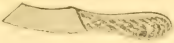
Knives and Forks, No. 12856; cocoa handles, with bolster and cap; extra fine steel. This is the most serviceable set we ever sold, as it is impossible for the handles to come off. Set, six knives and six forks, $1.25; postage, set, 30c. Given for one new subscriber and your own renewal with $2.50, or your own renewal with $2.00.

Knives and Forks, No. 1884, polished white bone finished handles, bolstered and coppered. Set, six knives and six forks, $1.00; postage 40c. Given for one new subscriber and your own renewal with $2.25, or your own renewal with $1.75.

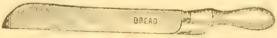


Children's Knives and Forks, No. 1. (Moiets) Genuine cocoa handles, full tang; two rivets, well finished. Set, six knives and six forks, 50c; postage, set, 15c. One knife and one fork, 10c; postage 4c. Set of six given for your own renewal with $1.25.

Kitchen Knife, No. 1, Jno. Russell's make; best quality, but small. Each 5c; dozen 50c; postage 3c. Five given for your own renewal with $1.00.

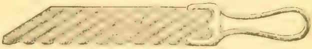


Kitchen Knife, No. 13, Jno. Russell's make; extra fine steel; the best kitchen knife made; also excellent to use as a potato-knife. Each 10c; dozen 98c; postage, each, 3c. Two given for your own renewal with $1.00.

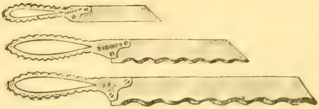


"Leader" Bread-knife, 8½ inch, polished steel, blade firmly set in finished hardwood handle; brass ferrule. Each 10c; dozen 85c; postage, each, 5c. Two given for your own renewal with $1.00.

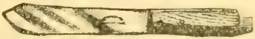
Special Bread-knife, extra quality steel; redwood handle; good enough for any one. Each 50c; dozen $5.00; postage, each, 8c. Given for one new subscriber and your own renewal with $2.00, or for your own renewal with $1.25.



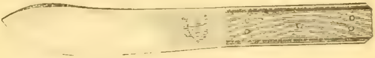
Corrugated Bread-knife. The Christy and Clauss knives have had a large sale. Both of these have a straight blade with corrugated edge, and it is not so easily sharpened as a straight edge. The knife we offer overcomes this difficulty and still retains the corrugated edge. Because the blade is corrugated when it is ground with a straight bevel on one side, it makes the cutting edge corrugated, and accomplishes the desired result. Each 15c; dozen $1.60; postage, each, 5c. Five given for one new subscriber and your own renewal with $2.00, or two for your own renewal with $1.05.



Clauss Knife-set, consisting of one bread-knife, one cake-knife, and one paring-knife, made of sheet steel, with nickel-finished iron handles. Per set of three knives, 20c; dozen sets $1.80; postage, set, 13c. Three sets given for one new subscriber and your own renewal with $2.00, or given for your own renewal with $1.00.

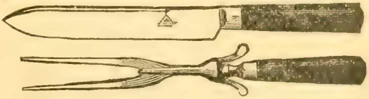


Butcher-knife, No. 9, six-inch blade, a cocoa-wood handle, well riveted; strong; the wonder of this department. Each 10c; dozen 95c; postage 5c. Seven given for one new subscriber and your own renewal with $2.00, or two given for your own renewal with $1.00.



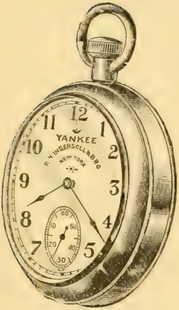
Butcher-knife, No. 12, 6-inch blade, Jno. Russell make; warranted extra quality. If you are looking for quality you can't beat it at any price. Each 25c; dozen $2.10; postage, each, 5c. Three given for one new subscriber and your own renewal with $2.00, or one given for your own renewal with $1.00.

Butcher-knife, No. 012, nine-inch blade, as above. Each 50c; dozen $4.85; postage, each, 8c. Two given for one new subscriber and your own renewal with $2.25, or one given for your own renewal with $1.25.

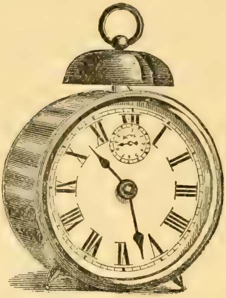


Carving-knife and Fork, swell handle, guard on fork; fine steel cocoa handles; warranted. Pair $1.00; dozen pairs, $10.00; postage, pair, 15c. Given for one new subscriber and your own renewal with $2.25, or given for your own renewal with $1.75.

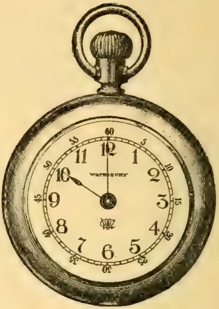
THREE GREAT BARGAINS.



Yankee Watch.



Alarm-clock.



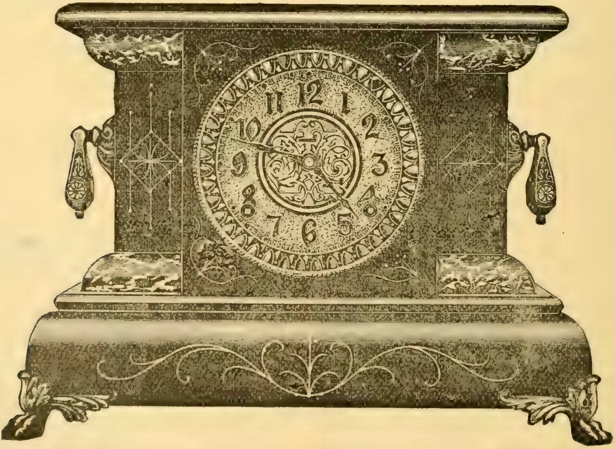
Ladies' Watch.

A Genuine "Yankee" **for only $1.00.** *One of the old timers that we aren't afraid to warrant.* The first of the above illustrations represents the *new thin model* "Yankee" watch. This is the lowest-priced guaranteed watch in the world. This is an 18-size American movement, patent short-winding device, fitted in an open-face nickel plated case, and has an unqualified guarantee for one year (contract with each watch). Just the thing for Young America's Christmas. Each only **$1.00.** Given for one new subscriber and your own renewal with $2.25, or postpaid for your renewal with $1.75.

Nickel Alarm-clock. The adjoining cut shows our Early-riser alarm-clock. It is a marvel for the money. Only **75 cts.**, just half what we used to sell a similar one for. Given for one new subscriber and your own renewal with $2.00, or for your own renewal with $1.50. Postage 25c.

Ladies' 7-jewel Watch. *While this price lasts, no other cheap watch will be in it.* The illustration is a poor representation of our 7-jewel, 6 size, Waterbury watch complete in a neat nickel plated case. This is the same identical watch we have sold for years at $4.00, and have had the least complaint from them of any watch we carry in stock. We have some special prices from the manufacturers, which enable us to offer them at the low price of **$2.50** each. Given for one new subscriber and your own renewal with $3.75, or for your own renewal with $3.25. Postage and register 15 cts. extra.

SPECIAL PURCHASE OF "INGRAHAM" MANTLE CLOCKS.



Eight-day; Half-hour Strike; Cathedral Gong; Patent Regulator; Bronze-metal Trimmings; Height, 11 Inches; Length of Base, 17 1-2 Inches.

WE HAVE recently made arrangements with the manufacturers for a large quantity of these handsome clocks at a price that will enable us to retail them for the price they generally wholesale at. The cases are an imitation of French marble, and are a reproduction of the French designs in wood, *highly polished*, nicely engraved, and gilded. It has an eight-day striking movement, and *all* the late improvements, such as the turn-back attachment, polished pinions, etc. Every clock is thoroughly tested before it leaves the factory. We can furnish them in either white or gilt dial. In ordering always specify which. Our price each, packed in a box, only **$4.48.** Given for one new subscriber and your own renewal with $5.75, or given for your own renewal with $5.25. Weight boxed, about 20 pounds.

WATCHES.

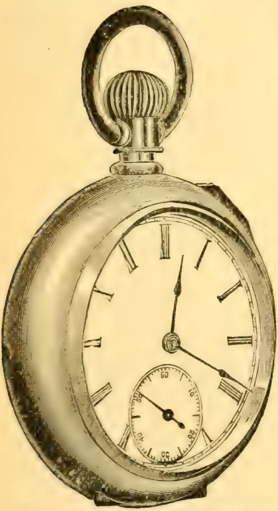
In preparing the following list of watches we have used the utmost care to select strictly reliable goods, such as are made by the oldest watch-makers of America, who will never lower the standard of their goods to make a few extra dollars for the time being. Such firms have spent years in building up a reputation as being reliable, and will never allow seconds or inferior goods bear their well-deserved trade-mark. Every reliable watch and case bears the maker's name stamped into the metal.

A gold-filled case consists of two plates of solid gold with one plate of composition metal between, all so thoroughly welded together that they practically form one piece. They wear as well as solid gold.

Guarantee. All movements sold by us, unless otherwise specified, are guaranteed for five years. This does not refer to the life of a movement, but that we will for five years from date of sale; correct, free of charge, any fault which may occur from defective material or workmanship, purchaser paying mail or express to and from factory. Any well made movement will last a life time if properly cared for. Each case contains a guarantee signed by the manufacturers, which pledges them to make good any case that does not wear its allotted time.

Cases. We have selected what we think to be the best make of cases on the market, and can furnish our watches complete with any of the following makes: 14 K., 20-YEAR.—Joseph Fays & Co. "Monarch," Keystone Watch Co. "Boss." Illinois Watch Co. "Elgin Commander," Crescent Watch Co. "Crescent," "Crown." 10-K., 15-YEAR.—"Planet," Joseph Fays & Co. "Montauk," Keystone Watch Co. "Boss." 14 K., 5 YEAR.—"Royal," "Orient," "Cyclone," "Mascot." The silverine will last a lifetime, and doesn't tarnish. Screw bezel silverine, 25 cts. extra; 16 and 18 size, open face, gold filled cases with screw-bezel, $1.50 extra. If you are unacquainted with the various makes of cases leave it to us, and we will give you the best.

At the close margins we sell watches we can not guarantee the price against the market fluctuations of standard movements and cases, as a 50 cent advance ofttimes takes all the margin we make; but will always bill at lowest ruling prices.



We advise shipping watches by express, as the companies agree to deliver them safely to any office in the U. S. prepaid. So always include 25 cents extra for express charges and we will guarantee safe delivery.

* * *

Watches as Premiums.

To those who may desire to turn their commission for soliciting new subscribers to GLEANINGS towards a watch we will make the following liberal offer:

We will allow 50c for each new subscriber and 25c for each renewal, including your own, but sufficient money to cover the subscriptions and balance due on premiums must invariably accompany order. For example: You secure six new subscribers together with your own renewal, which would be $7.00. The watch you select is listed at $10, so together they would be $17. Your commission would be six new subscribers at 50 cts., equals $3.00; your own renewal 25 cts., which added together makes $3.25. Deduct this from the $17.00 and send us the balance, which is $13.75, making the watch cost you only $6.75.

* * *

Our Celebrated Farmers' Watch.

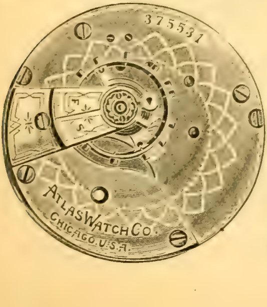
These watches are as standard as wheat, and are sold the world over at almost double these prices. Handsome and durable 3-oz. Dueber silverine case, 18 size, inside cap, stem wind and lever set; hinge open face or hunting case.

No. 1, 7-jewel Elgin, Waltham, or Hampden, gilt movement..........	Open face,	$ 4.85;	hunting case,	$ 5.90.
No. 2, 15-jewel Elgin, Waltham, or Hampden, gilt movement	"	7.75;	"	8.50.
No. 3, 15-jewel Elgin, Waltham, or Hampden, nickel movement	"	8.75;	"	9.45.
No. 4, 17 jewel adjustable Elgin or Waltham, gilt movement..........	"	9.60;	"	10.30.
No. 5, 17 jewel adjustable Elgin or Waltham, nickel movement.......	"	11.30;	"	11.95.
No. 6, 17-jewel adjustable Elgin "B. W. Raymond," nickel movem't.	"	21.20;	"	21.85.

* * *

The New "Sun-Dial" Movement.

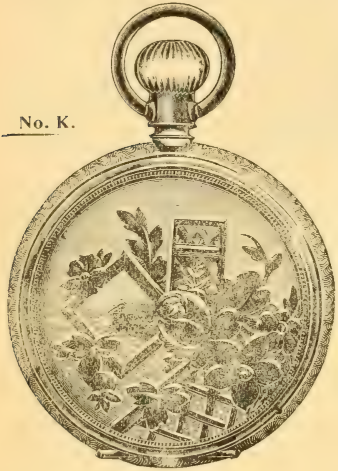
Made by the Celebrated Elgin Watch Co.


375537
ATLAS WATCH CO.
CHICAGO, U.S.A.

The new "Sun-dial" is practically the Atlas movement improved, and is made by one of the best of American watch-makers, with a view of competing with the cheap imported watches shipped to this country every year. They are 7-jewel nickel movement, with safety-pinion and poised balance, and are guaranteed to be first-class in every respect. Every movement guaranteed for two years. We have fitted these movements with many of the 18 and 6 size cases, as shown on the following pages.

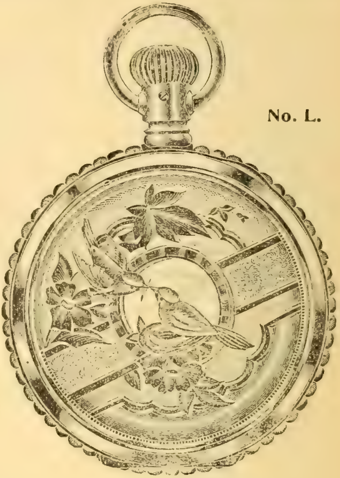
Gents' 16 and 18 Size Gold-filled Watches.

No. K.

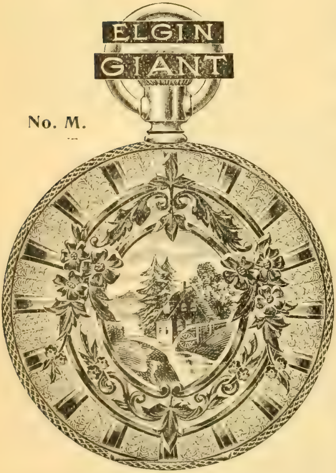


We can furnish the following patterns in either 16 or 18 size cases.

No. L.



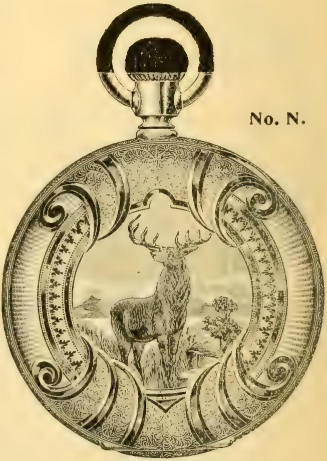
No. M.



$7.95

Buys any watch on this page in a 5-yr. guaranteed case complete, with a 7-jewel Sun-Dial movement.

No. N.



Prices of Watches Complete.

The first 7 are 18-size movements, while the last 3 are 16-size.

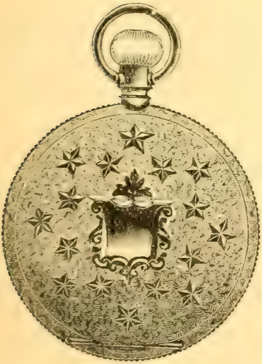
		10-K., 15-YR.		14-K., 20-YR.	
		Open.	Hunt.	Open.	Hunt.
18-Size.	7-jewel "Sun-Dial" gilt movement	$11 25	$11 95	$13 75	$14 50
	7-jewel Elgin or Waltham, gilt movement	11 55	12 60	15 45	16 55
	Full 15-jewel Elgin or Waltham, gilt movement	14 00	15 15	18 00	19 00
	Full 15-jewel Elgin or Waltham, nickel movem't, patent regulator	15 15	16 25	19 00	20 10
	Full 17-jewel Elgin, "G. M. Wheeler" or "P. S. B." Waltham, gilt	16 15	17 25	20 00	21 10
	Full 17-jewel Elgin, "G. M. Wheeler" or "P. S. B." Waltham, nickel	17 75	18 85	21 50	22 60
	Full 17-jewel "B. W. Raymond" Waltham, Appleton, Tracy & Co.	27 50	28 60	31 40	32 50
16-Size.	Full 7-jewel Elgin or Waltham, gilt movement			15 40	16 50
	Full 15-jewel Elgin or Waltham, nickel, pat. reg			18 95	20 00
	Full 15-jewel "Royal" or Waltham, nickel, pat. reg			24 75	25 85

Our Ladies' 6-size Gold-filled Watches.

No. G.

No. H.

No. I.



No. J.

$7.75

Buys any watch on this page in a five-year guaranteed case, complete with a 7-year "Sun-Dial" movement.

Designs in Cases.

We can furnish these handsome designs in 5, 15, or 20 year cases.

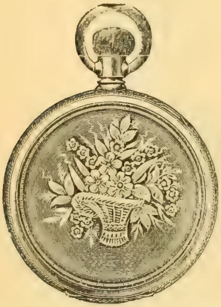
That 7-Jewel Sun-Dial AT $7.75 would be a credit to watches that sold for $25.00 to $40.00 20 years ago.

Price of Watches Complete.

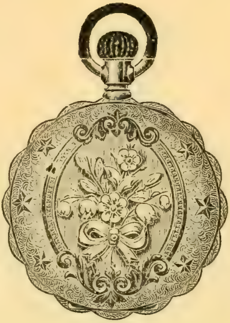
Notice we list only the standard make of movements; no unreliable make, but the best at better prices.	CASES.		
	14-kr., 5-yr.	10-kr., 15-yr.	14-kr., 20-yr.
7-jewel, new "Sun-Dial" movement	$ 7 75		
7-jewel Elgin, Waltham, or Hampden, gilt movement, expansion balance	9 40	$12 95	$13 95
Full 15-jewel Elgin or Waltham, nickel movement, expansion balance	12 80	16 30	17 30
Full 16-jewel Elgin or Waltham, nickel movement, expansion balance	16 10	19 60	20 60
Full 16-jewel Waltham, "Royal" movement	17 70	21 25	22 25
Full 17-jewel Waltham, "Riverside," or Hampden adjustable movement	24 30	27 85	28 85

See Premium Offers on these watches on page 13.

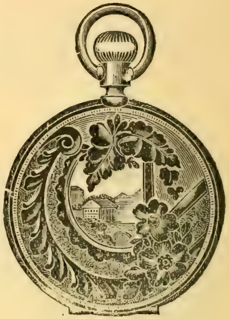
Some Special Bargains in Ladies' 0=size Gold=filled Watches.



No. A.



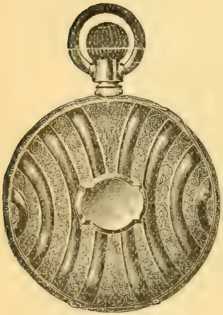
No B.



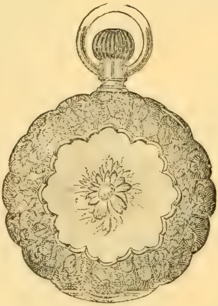
No. C.

$10.80

will buy any watch on this page in a 5=year guaranteed case, complete with 7=jewel Elgin or Waltham movement.



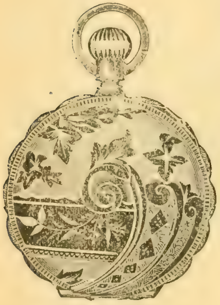
No. D.



No. E.

Designs in Cases.

We can furnish these handsome designs in 5, 15, or 20 year cases.



No. F.

OUR PRICE IS from 25 to 50 per cent lower than retail jewelers generally ask for these same goods. Don't let any one tell you that they are seconds or inferior goods. Remember that Elgin and Waltham movements are the same the world over. Each movement and case bears the maker's name. The Elgin and Waltham people are never going to put out seconds under their hard-earned reputation as being reliable. It's nonsense. Such talk generally comes from a source where there is an ax to grind.

See premium offer for above watches on page 13.

Price of Watches Complete.	Cases. 14-kr., 5-yr.	Cases. 10-kr., 15-yr.	Cases. 14-kr., 20-yr.
7-jewel Elgin or Waltham, gilt movement	$10 40	$13 00	$14 00
Full 15-jewel Elgin or Waltham, nickel movement, expan. balance	13 80	16 00	17 00
Full 16-jewel Elgin or Waltham, nickel movement, expan. balance	17 10	18 75	19 75
Full 16-jewel Waltham "Royal"	18 50	20 45	21 45
Full 17-jewel Waltham "Riverside," nickel movement	25 20	27 00	28 00

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Honey Column.

CITY MARKETS.

MILWAUKEE. — This market continues about the same on honey as reported by us last. The supply is very good, and the quality and condition are uniformly very acceptable. We should enjoy a more active demand, yet do not propose to complain, and trust good results will follow the shipments. We quote white 1-lb. sections, No. 1, 12@13; No. 2, 10@11; amber, No. 1, 8@10; extracted white in barrels and kegs, 5@6; dark, in barrels and kegs, 4@5; beeswax, 25@27.

A. V. BISHOP & Co.,
Nov. 19. Milwaukee, Wis.

NEW YORK.—Comb honey has been arriving rather freely; trade the past week a little more quiet. We quote our market to-day as follows: Fancy white clover comb, 11@12; fair white, 10@11; good white, 9@10—plenty of the latter here; fancy white comb honey, steady trade for; buckwheat comb honey, 7@8½; extracted honey, N. Y. State white clover, 5@5½; buckwheat, 4@4½; Southern, in demand, 50@52½; beeswax, 26@27.

FRANCIS H. LEGGETT & Co.,
Nov. 22. Franklin and Varick Sts., New York.

MINNEAPOLIS.—Market firm at 11@11½ for fancy white comb; No. 1, 10@11; fancy amber, 10; No. 1, 9; fancy dark, 9@9½; No. 1, 8@8½; fancy white extracted, 5@6; amber, 5; dark, 4@4½; beeswax, 22@25. Market has been and still is in good condition. Really fancy white comb honey in very good demand. While receipts have been fairly heavy, they have been kept down by a good shipping demand.

S. H. HALL & Co.,
Nov. 19. Minneapolis, Minn.

BOSTON.—The demand for honey has been lighter for the past 10 days owing to the holiday trade. Stocks are quite equal to demand, and prices well maintained at 13c for fancy white in cartons; No. 1 white, 11@12; fancy amber, 9@10; white extracted, 6@7; darker grades, 5@6.

BLAKE, SCOTT & LEE,
Nov. 20. Boston, Mass.

PHILADELPHIA.—Honey selling freely. We quote fancy comb, 14; No. 1, 12; amber 10; buckwheat, 9; extracted, 5; dark, 4; beeswax, 27. We are producers of honey; do not handle on commission.

WM. A. SELSER,
Nov. 23. 10 Vine St., Philadelphia, Pa.

BUFFALO.—There is no change in price of honey since our last quotation. I think there is a little better demand. Beeswax scarce, and in good demand at 27@28 for pure wax.

W. C. TOWNSEND,
Nov. 26. Buffalo, N. Y.

ST. LOUIS.—Comb, white, 24-lb. cases, 11@12½; amber, same, 9@10½; dark, same, 6@8; extracted white, in cans, 5@5½; in bbls. 4¾@5; amber, in cans, 4¼@4¾; in bbls., 5@4½; dark, 3½@3¾; beeswax, prime, 24½; dark, half price.

WESTCOTT COMMISSION CO.,
Nov. 18. 213 Market St., St. Louis, Mo.

ALBANY.—There is a very good demand for comb honey, with no change in prices since last quoted. Clover is coming forward more freely. We quote fancy white, 13; fair to good, 10@12; buckwheat, 7½@8; mixed, 8@9; extracted dark, 4@4½; light, 5@6.

CHAS. MCCULLOCH & Co.,
Nov. 19. Albany, N. Y.

CINCINNATI.—Demand for honey has somewhat improved, but prices are unchanged. We quote 3½@6 as the range of prices for extracted honey, and 10@13 for best white comb honey. There is a good demand for beeswax at 20@25 for good to choice yellow.

CHAS. F. MUTH & SON,
Nov. 24. Cincinnati, O.

DENVER.—We can quote our honey market a little more steady, but the low prices still prevail. We are having good demand for our brand of extracted. No. 1 white comb honey, 10; No. 1 white extracted, 6; beeswax, 25.

R. K. & J. C. FRISBEE,
Nov. 21. Lockbox 1014, Denver, Col.

COLUMBUS.—Fancy white, 13; No. 1, 11@12. Demand good for all grades white comb. We are in the market for supplies.

THE COLUMBUS COMMISSION & STORAGE CO.,
Nov. 20. 409–413 N. High St., Columbus, O.

DETROIT.—Comb honey in fair demand. Best white comb honey, 11@12; other grades, 8@10; extracted white, 5@6; dark, 4@5; beeswax, 25@26.

Nov. 19. M. H. HUNT, Bell Branch, Mich.

CHICAGO.—Fancy white, 11@12; No. 1 white, 10; fancy amber, 8@9; No. 1 amber, 7; fancy dark, 7@8; No. 1 and mixed, 7; extracted white, 5@6; amber, 4½@5; dark, 3½@4; beeswax, 26@27.

R. A. BURNETT & Co.,
Nov. 18. 163 South Water St., Chicago, Ill.

KANSAS CITY.—The receipts of comb honey are large; extracted, light; demand fair. We quote fancy white comb, 11@12; No. 1, 10@11; amber, 8@9; extracted white, 5½@6; amber, 4½@5; beeswax, 20@24.

C. C. CLEMONS & Co.,
Nov. 19. Kansas City, Mo.

CLEVELAND.—Fancy white, 12@13; No. 1 white, 11@12; fancy amber, 9@10; No. 1 amber, 8@9; fancy dark, 7@8; white extracted, 6½; amber, 5½@6; beeswax, 28.

A. B. WILLIAMS & Co.,
Nov. 20. 80-82 Broadway, Cleveland, Ohio.

FOR SALE. — 25 bbls. extracted pure white-clover honey, very light in color, and of finest quality, at prices as cheap as the cheapest, quality of goods considered. Can put it up in any style of package. Write for price, stating quantity desired.

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—Alfalfa honey, light amber, in carload lots. 3¼ cts. per lb.; sample, 10 cts.

JOHN NIPPERT, Box 1051, Phœnix, Arizona.

FOR SALE.—Tons of honey, comb, at 7 to 12c per lb. Inclose stamps for samples of extracted at 4 to 6c, in 160-lb. kegs, f. o. b. N. L. STEVENS, Venice, N. Y.

FOR SALE.—Pure honey.—Clover, extracted, 6½ cts. per lb.

I. J. STRINGHAM, 105 Park Place, N. Y. City.

FOR SALE.—Good extracted white-clover honey and heartsease and Spanish needle. Either, price 5c per lb., 60-lb. cans, 2 in a case. Send stamps for samples.

JNO. A. THORNTON, Lima, Ills.

FOR SALE. — Goldenrod honey, extracted, in cans and barrels, cheap as the cheapest.

J. B. MURRAY, Ada, Ohio.

WANTED.—To buy quantity lots of fancy comb and gilt-edged extracted honey. B. WALKER,
Evart, Mich., or 541 Van Buren St., Chicago.

CHAS. ISRAEL & BROS.,
486, 488 & 490 Canal St., Corner Watts St., N. Y.
Honey and Beeswax.
Liberal Advances Made on Consignments.
Wholesale Dealers and Commission Merchants.
Established 1875.

No cheap Queens to sell; but the best.
Golden 5 band, or 3 band from
imported mother. Untested, 75 cts.; tested, $1.00.
L. BEAUCHAMP, Box 613 San Antonio, Texas.

The Review at Reduced Rates.

The **Bee-keepers' Review** is $1.00 a year, but, for the sake of getting it into new hands, and being able to begin the year with a large list, I will, until Jan. 1st, send free to each *new* subscriber, a copy of "Advanced Bee Culture," a 50-cent book of nearly 100 pages, that gives briefly but clearly the best methods of management from the time the bees are put into the cellar in the fall until they are again ready for winter—32 chapters in all. Those who prefer can have, instead of the book, 12 back numbers of the **Review**, the selection to be mine, but no two numbers alike. All who send $1.00 now will receive the last four issues of this year free, and the **Review** will be sent until the end of 1898. If not acquainted with the **Review**, send 10 cents for three late but different issues.

W. Z. HUTCHINSON, Flint, Mich.

Free! Free! Free!

What's Free?

WHY, **Danzenbaker's Bee-book,**

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Tells all about my new hive, and system of management, particularly how to produce comb honey that will bring from 2 to 4c more than honey produced in the old way. Address

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Washington, D. C.

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Weekly Bee Journal One Year for 25c.

To every *new* subscriber who sends us $1.50 before Jan. 1, 1898, we will mail a copy of Prof. Cook's 460-page cloth-bound book, "BEE-KEEPERS' GUIDE" (price $1.25), and the **Weekly American Bee Journal** for one year. That makes the **Journal** only 25 cents—a trifle less than half a cent per number. Or, if any one now getting the **Bee Journal**, and whose subscription is paid to Jan. 1, 1898, will send us $1.50, with a new name, we will mail the above book to the sender, and the **Bee Journal** for a year to the new name and address. We need hardly tell you what the **American Bee Journal** is; but if you are not acquainted with it, *write us for a free sample copy.*

Address

GEO. W. YORK & CO., - 118 Michigan St., Chicago, Ill.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO.

VOL. XXV. DEC. 1, 1897. NO. 23.

STRAY STRAWS FROM DR. C. C. MILLER.

SLUMGUM, according to *Schles. Holst. Bztg.*, is worth $7 a ton to mix with commercial fertilizers.

"IT TAKES from 7 to 15 pounds of honey to produce one pound of comb in the very best circumstances," says C. P. Dadant, *A. B. J.*, p. 691.

BEE-KEEPERS "must co-operate fully," says Prof. Cook, "and then they can get their rights. When this is done, bee-keepers will not be forced, or even asked, as they are now, to take 3½ cents per pound for the best honey!"—*Am. Bee J'l*, p. 692.

SOMNAMBULIST, the delightful dreamer of *Progressive*, has a cloud in his sky. A friend, innocent of the identity of the sleep-walker, told him to his teeth that he didn't like Somnambulist's writings. Never mind, Sommy, lots of us do—like 'em much. [Hear! hear! —ED.]

I'LL TELL YOU just why the little cleats are better than grooves on smokers. The sharp edge of the cleat makes the smoker less likely to slip out of the fingers. A much weaker spring is required. But can't you make the outer edge of the groove sharp? [Yes, and we will do it.—ED.]

THIN FOUNDATION without side-walls, made on the machine for the construction of which the members of the Mich. B. K. A. paid last winter, was used to some extent the past season by Mr. Aspinwall. Combs were delicate and fragile, but the foundation curls and warps terribly.—*Review.*

LIVE BEES, according to a decision at the world's postal congress at Washington last June, may be sent, after Jan. 1, 1899, as merchandise to all lands of the Postal Union. Maximum weight, 12.35 oz. Max. length, 11.8: width, 7.87; thickness, 3.94 inches.—*Luxemburg. Bztg.*

THE EDITOR of *Australian Bee Bulletin* is afraid the article of W. A. Pryal, in April GLEANINGS, about Tasmanian blue-gum, may hurt the reputation of Australian honey, and protests that it is *not* a typical Australian honey, or a main portion of their honey crop. He pins his trust to the honey of the box-trees.

CHALON FOWLS' plan of having supers cleaned out may be a good one, but it has the fatal defect that, at the time I want supers emptied, I seldom have (and never want) colonies short of stores. But I see a ray of light for which I thank him, for it's possible that having only a small entrance to the super may make a difference.

RURAL FREE DELIVERY of mail has been tried experimentally in 29 States on 44 routes. First Ass't Postmaster-General Heath, in his report, says: "The general results obtained have been so satisfactory as to suggest the feasibility of making rural delivery a permanent feature of postal administration in the United States, not immediately or in all districts at once, but in some gradual and graduated form." Hurrah for free delivery! [Hip, hip, hur——ED.]

E. E. HASTY, in *Review*, begs to go slow in applying the Monnier cure of paralysis, and imperil but *few* healthy colonies at first "(putting a healthy family into the same room with a family that has leprosy)". He thinks the disease may be only temporarily dormant, and the proposed cure may spread it. [No, it would hardly do to try Monnier's cure on too large a scale; but I do think it would be a good idea to test it in a small way.—ED.]

AN INQUISITIVE PERSON, Ernest, reading p. 811, about the flies troubling your head at your desk, paraphrases slightly a question of yours on page 586, and says, "But why have flies in your office at all? Why not have screens and screen-doors?" [You mustn't ask questions that I can't answer; anyhow, you can tell that "inquisitive person" that it is possible to screen a single honey-room, while it may not be possible to screen the windows of a large factory. Our office is in one of our factory buildings.—ED.]

A HONEY-FAIR, lasting two days, has been successfully tried by the Hanover bee-keepers' society in Germany. For two weeks the dailies prepared the public, by articles about honey and the coming show, where pure honey could be obtained. Sixteen bee-keepers brought their wares, most of them being sold out first day. Chunk honey was in special demand. All honey was guaranteed by society; a minimum price of 25 cts. for comb and 20 for extracted was set, but the actual average of comb was 30 cts. (one man got 35), and of extracted 22½.

FALL INTRODUCTION. — Remove a queen after breeding stops in fall; and with no brood in hive the bees are hopelessly queenless, a condition in which they never refuse a queen. So thinks W. Z. Hutchinson, and quotes Mr. Turner, who re-queens in fall and never lost a queen. [I had never thought of it before; but my own experience would lead me to believe that W. Z. and Mr. T. were right. But say, doctor, you did not tell us what *you* thought about it. Give us another Straw on the subject, and, by the way, tell us more what you think when you quote the opinions of the other fellows.—ED.]

HONEY-CAKES. The famous *lebkuchen* of Germany. Bring to a boil 2 lbs. honey with ½ pt. water. While still warm, mix with 2 lbs. flour; knead well and set away for some days (the longer the better). Then stir in 3 yelks of eggs, with flour, and plump 1¼ oz. bicarbonate soda previously dissolved in water. Mix well. Add, according to taste, 2 lbs. sugar, some crushed cinnamon, cloves, citron, and chopped almonds; knead well, roll out to a finger's thickness, and bake.—*F. L. Thompson* in *Review*. [That cake ought to taste good; but I should think such an array of stuff would be rather hard on a fellow's stomach. By the way, some of the Root women have been trying your recipe for honey caramels as given in the honey-leaflet "Food Value of honey." The caramels are just fine, and to my notion taste much better than the boughten ones, and certainly more wholesome.—ED.]

PLEASE TELL WHY, Mr. Editor, the name Danzy is given to the bottom-board that I described and illustrated long ago, and that you saw years ago on all my hives. [With the greatest of pleasure, doctor. When Mr. Danzenbaker came here and showed me his peculiar style of bottom-board I said, "Why, that is Dr. Miller's." And then we looked up the back volumes, and found where you had described something similar with an illustration, but not quite the same thing, although intended to accomplish the same purpose. The construction of Dr. Danzenbaker's bottom-board if quite different. Your floor was flat on one side, with a two-inch space on the other. Mr. Danzenbaker's has one-inch space on one side and ⅜ on the other. Your board was made of ⅞ flooring nailed *on* to two side-pieces, while you will note that Mr. Danzenbakers's is made up of ⅜ stuff let into grooves of two side rails. And then, too, his is so constructed as to permit of a shrinkage and swelling of the boards without splitting. Your old board could not be used with the modern Dovetailed hive with no bee-space under the frames The name "Danzy" is therefore applied to a *peculiar construction* of the bottom-board, and not to a board that may be *used* the same as you used yours.—ED.]

SEPARATORS, p. 814, are advised in shipping-cases, so when a section breaks down it won't break down others. But isn't it cheaper not to have the first one break down? I can't imagine a necessity for more than one section in a thousand breaking down, and that one section shouldn't be shipped. [Ye–s–s. If everybody were careful not to ship any honey that would break down, and the freight *smashers* were freight *handlers*, we should not need any no-drip shipping-cases—that is, I mean cases with paper trays with little cross-cleats; and yet you yourself acknowledge these to be good. We can not take too many precautions. In the first place, ship only such honey as we feel tolerably sure will not break. Second, put it in no-drip shipping-cases. Third, put separators between them. The last two items cost but a mere trifle, and might save a hundred times their value in honey that might be broken down by freight-smashers or truckmen, who somehow are able to smash even the strongest trunks ever built, to say nothing of honey put up in the best way possible. We must provide for the unexpected, even though the "unexpected" may not happen once in a hundred times.—ED.]

SORRY TO SAY, Ernest, we're not nearly so smart as you want to give us credit for, p. 802. I can't say how much time we did devote to that honey crop, but I know that two of us did all the work except what help we had from Ghordis and Philo. Their help would amount in all to less than one man's work for two months. Perhaps one man would have done in a month what both of them did. So, "I know that two of us did all the work except" what Ghordis and Philo did — "perhaps what may be equivalent to two months' work." [Ah, I see—no, I don't, either. You haven't *yet* told us *how many* days you and your women-folks spent in harvesting the honey crop. You simply tell us that two of you did all the work except what Ghordis and Philo did, and that their work would be about the equivalent of two months. What I should like to know is this: Did you and your assistant spend *all* of your time during the other ten months in harvesting the crop, or were you busy a part of the time at something else? I know for one thing that you write for GLEANINGS, the *American Bee Journal*, and a number of other periodicals. I know, also, that you spend some time in Sunday-school work, and a little time in raising posies; perhaps some time in running a small farm—and in mowing "weeds and things" in front of your place. I know, also, that Emma helps a good deal about the housework. Now, what I am trying to get at is this: *About* how much time in days, of ten hours each, did you two spend in harvesting that crop, from the time of putting the bees into the cellar to the time of putting them in again? Just give us a good guess, if you can not do any better. The time, if get-at-able, would be very interesting for the reason that we then could arrive approximately at the cost of that honey per pound, making due allowance for interest on money invested in appliances, deterioration, and changes.—ED.]

Ridge-Pole
Musings

Family Matters; Traveling over the Country; Something of the Resources of the Country.

BY R. C. AIKIN.

This is Oct. 26, 1897. The Muser has been absent from the columns of GLEANINGS for several months, and very busy months too. During these months the little owl that sits on the end of the ridge-pole has been frequently seen and heard, but the Muser had not time to reduce her wise looks to the language of common humanity. Now that the wind howls and snow flies this wintry day, we will get the Muser's thinking-machine oiled and polished, ready for grinding out wisdom. While the rust and gum are wearing off we will give a somewhat reminiscent muse or two on other than bee topics.

R. C. AIKIN AND FAMILY.

The editor was so kind as to prepare a picture of the family of which the Muser has the honor of being the male member. Just "we three" and the little owl is all there is of us. The editor forgot to put the little owl in the picture, and, worse still, forgot to put the picture in GLEANINGS. You see he got just the picture made without telling the Muser any thing about it, and the first the Muser knew it was done was after the former musings were all printed, when along comes a letter saying the editor wanted some kind of article with which the picture might appear; so here it is, and now you can see the Muser as you will find him when he returns from the loft and the company of the owl.

September 2, 1896, we started on our overland journey. Baby Eva was eight months old when the photo was taken, and eleven months when we started on the trip. She now sits beside me as I write, fat and hearty, and busy helping mamma sew.

Our county, Larimer, lies on the north line of the State, just south of Cheyenne, Wyoming, and embraces a large territory, including a part of the mountains, and is probably 60 miles wide from north to south. Loveland is near the south line of the county, and is about 35 miles nearly east from Long's Peak, one of the highest mountain-tops. Our railroad is a part of the Union Pacific system, but now operated by the Denver and Gulf, and runs northward from Denver, and parallel with the mountain range. The general course of the mountain range is nearly due north and south, and about every ten or twenty miles is a river or stream coming out of the mountains, all having a general eastward trend. To the north of us is the Poudre River, on which is Fort Collins, our county-seat, a town of 2500 or 3000 population. Loveland is due south of Fort Collins 14 miles, on the Big Thompson River, and has a population of 1500. From Loveland we journeyed south 7 miles to Berthoud, on the Little Thompson River, and from there 10 miles south to Longmont, on the St. Vrain River, where we spent the night with Mr. J. B. Adams. Still south from Longmont is Boulder Creek and one or two more small creeks before we reach Denver on the South Platte River. From Loveland to Denver is about 50 miles—almost due south.

This territory, from Denver north about 75 miles, is perhaps the best-watered part of the State, and is a grain, hay, and stock country. The principal crop is wheat; second, hay; third, potatoes. The climate is alike throughout this region, but soil is very variable. Loveland has a clay soil, while Greeley, but 20 miles away, has a very sandy soil. Greeley is the center of the potato industry, and is famed for both quality and quantity of her "spuds."

There is also quite an industry in parts of the country in producing small fruits—principally strawberries and raspberries. Loveland, besides supplying her own market, ships large quantities of strawberries and raspberries. Apples, too, are largely planted, though but few orchards are in full bearing; but, judging from the results of the older orchards, and the great number of new ones started, I should say that, in ten years from now, there will be a big business in apples.

As alfalfa at present is the second crop—if not fully equaling wheat—we naturally find many bees throughout the country. Longmont and vicinity of Denver have probably more bees to the square mile than any other part of the State this side of the "range." The western slope, no doubt, has many bees too, though I doubt if any more than this region. In 1892 the number of colonies of bees in Boulder Co. was estimated at 18,000, which, yielding 25 pounds, would give 20 carloads. Outside of the towns, I should judge that one-fourth of the homes have from one to ten or more colonies of bees, and that within 75 miles of Denver there are bees enough to produce fifty or more carloads of honey, if they were properly handled.

All this country is watered by the aforementioned streams, and to take away these waters would be to lay desolate what is now a fruitful country.

So the first end of our trip was through this fertile, well-watered country going crosswise of the streams. We called on but four apiarists in going to Denver, because we were so late getting started that we could not visit much if we were to see all the country we had mapped out to traverse, and yet get to the Lincoln convention.

From Denver we continued south, passing through much barren country and some nice watered tracts, the greater part unwatered, till we reached the Arkansas River at Pueblo. Here and there we saw bees south of Denver, but they were scattering.

Denver is a nice city, but wretchedly wicked; but the place of the greatest display of wealth was Colorado Springs. This is the place of residence of many of the mine-owners in the Cripple Creek district. Were it not for the mines I do not see how the place could survive, for the water-supply in that region is very limited, and very little farm produce raised. Colorado Springs must draw her supplies from other parts of the State.

You may wonder why the mine-owners should live in a town or city out of the mountains and many miles from the mines. I am not sure that I can give all the reasons, or even the principal ones; but the great elevation of the country where the mines are located makes the winter season extremely cold and disagreeable. Then, too, many can not stand a continuous residence at so great an altitude. The high altitudes are hard on heart and nerves. The writer finds his heart running about five beats per minute faster here than in the Missouri Valley, though not up to normal even here, 5000 feet. Could wife and I average the speed of our heart pulsations it would probably be better for both of us. The highest point we touched was at Palmer Lake, over 6000 feet, where wife said she did not want to stay long; but as for myself I felt no inconvenience whatever.

Pueblo is about 200 miles south of here, and from there we turned our faces eastward. The city seemed to be largely a manufacturing one, and a distributing-point for the mines.

Continued.

MARKETING HONEY.

How the Home of the Honey-bees is Making Live Bees not only Gather Honey, but also Sell it.

BY A. B. WEED.

The subject of marketing honey is second in importance with the bee-keeper only to that of getting it. Much has been said about extending the market for it; but, as a usual thing, the suggestions went no further than to say, "Develop the home market." This is all very well so far as it goes; but the fact is, there never can be much demand for it where it is produced. The place to sell it is in the cities.

There are difficulties in pushing the honey trade, which do not exist in selling most other eatables. Sales are not often made by men who have an interest in it and who understand it, but by commission men. The charge of adulteration has been made so persistently that it is looked upon with suspicion. Then it has had to take its chances with other things which are put upon the market by men who know how to make their wares attractive.

This matter of suiting the trade, and tempting buyers, has grown to be a trade in itself. Almost every thing which is sold has the benefit of this kind of skill more than honey. The best way to increase the sale of any thing is to place it in an attractive form before the people who need it, and this is what the A. I. Root Co. have undertaken to do with honey.

A good display of honey was prepared, and with it some bees in an observatory hive to attract the attention of the crowd. It might be observed here that they are an excellent thing for this purpose, and the crowd which they draw will frequently reach to and even into the street. The first city in which it was shown was Akron, Ohio. This place was selected because conditions seemed to be favorable for a good market. The city was of good size—40,000—and, as most of the people worked in manufactories, they would have money to spend. The venture was tried upon a very small scale at first, and two gross of one-pound glass jars were offered for sale. At first they went fast; but as the number of remaining ones grew less they did not seem to be noticed. But sales started up again as soon as more jars were put with them. The crowd which the bees drew seemed to overlook the honey unless there was enough of it to make a big show. This fact is a very important one, and should be observed by any one who tries to sell honey in this way.

Both comb and extracted honey were offered for sale, side by side, but the people preferred the latter. This seemed rather surprising, as the demand had always been the other way. The reason was that they had never before seen extracted honey which tempted them as much as this did, and they had always looked upon it with suspicion. But here was some that they had seen taken from the combs, and they had been made to understand why it could be sold cheaper than if the comb went with it. They now had confidence in it.

One of the most important things noticed about the enterprise was the fact that the honey was bought by all classes of people alike. Rich people bought it because it was pretty and tasted well, and poor people bought it because it was good and cheap.

In starting an enterprise of this kind the first thing to be considered is the fact that most people know but little of the apiary, although a few think they do. They have read that honey is adulterated, and that it is manufactured, and most of them are glad to meet some one who can really tell them the truth about it.

The most surprising thing, perhaps, about the business is the interest taken in it by city people. This is so great that it can be used by the dealer to bring his honey to their notice. Then if it looks attractive they will buy it; and if it is good they will like it, and the demand is established.

Every thing connected with the apiary is useful in getting their attention. Things which the bee-keeper is apt to overlook because so familiar with them are wanted as much as any thing else.

Any one who starts out to make a show of this kind must have a good stock of patience and breath. Many of the questions asked are intelligent ones, and these, of course, should receive attention; but very many are prompted only by curiosity. It is not always safe to give a perfectly truthful answer to such, because, the stream once started, there would be no ending. On this account it is sometimes best to obey the biblical injunction literally, and answer some people according to their folly.

One old gentleman, however, would not be put off in this way. He had never kept bees, never expected to, and had no reason for taking so much of my time. I finally said to him that I had told him all I knew, and handed him a copy of the A B C, directing him to learn it by heart; and then, if he felt the need of further instruction, come to Medina, the center of bee-knowledge, and the Root Co. would see what more they could do for him.

There is always at least one "smart" person in every crowd who knows just how strained honey is made, and can tell all about the way "comb is made of paraffine, filled, and then capped over with a hot iron." One of this kind explained the whole process to me lately, while the crowd listened and admired his wisdom. He did not know that I had any thing to do with the display. I thanked him for his information, and asked him if he believed what he said.

"Of course I believe what I say. Why do you ask such a question?"

"Because, my friend, I will show you a chance to make $1000."

I then read him the offer made by A. I. Root, years ago, and which has not been taken up yet, and told him that Mr. Root was good for any amount. He subsided quickly, and backed out of the crowd. These cards are useful in many cases.

Another man was very positive about a few things pertaining to the hive, but not sure on other points. He knew that the workers laid all the eggs, that the queen ruled the hive, that the drones defended it from its enemies, but could not remember what the king bee was for! One man wanted to buy that "family" of bees and take them home in his trunk.

Here are some of the questions that I have fired at me every day. I have appended answers to a few of them, and perhaps the readers of GLEANINGS will help me with the rest.

"What kind of bees are those?"

"Those are live bees."

"Do bees die often?"

"No, only once."

"Do bees make honey?"

"No, neither do we. The bees gather it from flowers, and we take it from them."

"When do bees die?"

"When their time comes."

"Is the queen's sting poison, and will it kill you?"

"Why don't the drones sting?"

"Why don't you show us the king-bee?"

"How many bees in there?"

"How do you count them?"

"What do you use so that they won't sting you?"

"Were those bees wild once? and how did you tame them?"

"Ain't that drone there the daddy of them all?"

"Ain't they crowded in there? and don't the big ones hurt the little ones?"

"They look real sociable in there, so close together."

After one has heard such questions upward of a thousand times he begins to be tired; but after all, they show how much interest is taken in the subject by people who can easily be turned into honey-eaters.

One lady was heard to say to a friend, "That strained honey is a fraud. I bought some once, and it all went back to sugar. I was real careful of it, too, and kept it in the ice-box."

Such things show the ignorance with which we have to deal, and the need of popular education about honey.

Another lady said to me, "That honey," pointing to a glass jar of it, "is the nicest I ever saw." It was just like all other honey, except that it was put up in better style. Such things demonstrate the necessity of making it attractive. Only a few feet away there was an open box of one-pound tin cans of honey. Nothing had been done to bring it to the notice of buyers. No one bought it, and not many people even knew it was there.

There is one means of effecting sales which is particularly good, and ought not to be neglected. It is giving free samples. If you can succeed in getting a spoonful of honey into a person's mouth he will want more. I found that this bait would catch not less than five people out of six,

The honey used was California sage, and every one of the thousands who tasted it was very much pleased with it. Some other kind might have answered as well, but this it was which was used.

[I will explain to our readers that Mr. A. B. Weed is a brother of Mr. E. B., the foundation-man. For some time he has wanted to demonstrate that he could sell honey by making a show of live bees in a hive. When he told me his experience in that line, and how he drew crowds in the city of Detroit, I told him he might at least make an attempt. He prepared an exhibit, consisting of an observatory hive containing bees and a queen, some small cages containing each a queen, a few bees, and some drones. Along with this was an assortment of extracted honey put up in glass, an extractor, and comb honey in sections.

The experiment was tried first in our own town; but owing to the fact that everybody in Medina is familiar with bees it did not take as well as it did in Detroit. But still it helped materially the sale of honey in our local grocery, where the experiment was tried; and as Mr. Weed was desirous of trying it in another place, he prepared a similar exhibit for Akron, a city of about 40,000 inhabitants, about twenty miles east of here. As he explains, he took along two gross of jars (No. 25) of honey, and a can or two of California sage in bulk. The exhibit was made at one of the most prominent groceries, and the effect was instantaneous. Not only were crowds drawn, but honey began to sell in that grocery as it had never sold before. Mr. W. intended to stay only a week, because we were fearful the experiment would not be a success; but at the end of that time he had cleaned out nearly all of our extracted mountain sage, and nearly all other odds and ends, and received instructions from Medina to keep right on. We now have a whole carload of beautiful mountain sage on the way, and we hope to be able to supply Mr. Weed with extracted honey of fine quality, to permit him to carry out his dreams that he has been incubating for several years, to make honey sell in groceries where it had been slow sale before.

When Mr. Weed calls on a grocer he asks simply for the privilege of space in a window, and stipulates that, for the first two days, he will make the display and sale of honey for him without charge. The groceryman makes all the sales, but is to buy the honey (of us, of course), and his profit will be the difference between wholesale and retail. In two or three instances Mr. Weed was requested to stay not only two days, but a whole week, at each grocery; and the way our women-folks have been busy putting up the extracted honey the past week or so shows pretty conclusively that the scheme is a success.

Live bees are indeed a real novelty to the average person. The habits of the interesting insects are briefly explained by Mr. Weed, the method of producing comb honey illustrated, and the *modus operandi* of extracting shown.

I omitted to state that, on top of the observatory hive, is put a row of sections of sealed comb honey. Mr. Weed explains how the comb honey is produced. He has also some extracting-combs filled with sealed honey. When he gets big crowds he extracts two or three combs to show how the job is done. This one fact alone inspires confidence in the consumer, and of course he not only buys what *is* real honey, but what he honestly *believes* to be a pure article.

Mr. Weed has another scheme. When the crowds will not buy he has on hand a lot of paper spoons — oblong strips of stiff paper about two inches long and an inch and a quarter wide. He curves one of these into a sort of trough, dips it into the thick mountain sage, and transfers it to his mouth. Handing out the "spoons" he invites the crowd to do likewise. Of course, there is a smacking of the lips (the spoon thrown away), and, "Um, um! that's good; I must take some home to my wife."

Perhaps it is a little late yet to make an exhibit of live bees, but we are doing it all the same, and I can assure you it is a great holiday attraction.—ED.]

* * *

SELLING HONEY DIRECT TO GROCERS.

Giving Commission Houses the Go-by; Selling Honey by the Piece Rather Than by Weight; a Racy and Interesting Article.

BY MORTON'S BROTHER-IN-LAW.

One day, about the first of October, Morton and I were busily scraping sections, and not sorry to see the end of that tedious task approaching. The summer had been fine, viewed from a bee-keeper's standpoint, and a good crop of comb honey was nearly ready for the market as a reward for time and labor expended. My thoughts had been running in the direction of a fishing-excursion now that a little leisure time seemed to be in sight, when Morton broke in with something like this:

"I am not sorry to see the last of this pesky scraping; but the tug of war is yet to come—the one part of the bee-business, and one of the most important parts too, which we bee-keepers don't seem to improve upon any. In fact, we go on from bad to worse; and that is to sell our honey after we get it."

"Well," I said, as he paused to lift over another super, "no one could expect you to sell it *before* you get it," which obviously sensible remark he disdained to notice, but continued:

"I can get honey ready for market in style that I am not ashamed of; take care of my bees all right, and even attend the conventions and picnics without flinching; but when it comes to selling the honey for a price which I am entitled to in all fairness for such nice honey as that lot is — why, I don't know how it is to be done. We producers keep sending our honey to the big cities, where the commission man sells it to a customer that he wishes to please *first*—the bee-man last. The dealer may be honest, of course; but the man who buys of him has the best of the situation every time. Then we send so much honey to two or three large cities that they are overstocked; the market is glutted; down go quotations; everybody who sells or buys honey governs himself accordingly; and after a hard summer's work we get it where the chicken got the ax;" and, going out to the grapevine, he picked the largest bunch of grapes he could reach, and went to see if the bees were all out of those last few supers over the escapes.

Said I to myself, "Who is this customer that the commission man is so anxious to please?" and the reply was easy enough—the retail grocer. He sells the great bulk of comb honey, without question. But how does the city commission house catch that retail grocer in the first place? By drumming the trade, sending out that knight of the grip, "talking like a blessed angel, eating like a blasted tramp."

"See here, Morton," said I, as he came in with a super full of sections, without a bee left in it (who would keep bees without using escapes, anyway?) "I've got a scheme."

"Don't doubt it," was his reply; "you never seem to be out of stock in that line," and he went after another super.

Such a little bluff as that never disturbs me. I'm used to 'em; and my thoughts cantered on in that same channel.

Now, if the grocer is to be patted on the back, his feathers smoothed the right way, why don't we honey-producers do it ourselves without paying any city commission man to do it for us? Isn't it the best way to please him, to so pack, grade, arrange in attractive shape, and, above all, give him a margin of profit, without any "unexplained residue of facts" in shape of unsalable goods to make him wish he had never *seen* any honey? Morton had resumed scraping sections, and now wanted to know what my scheme was. To state it briefly, it was to skip the commission man in the city, and sell directly to the grocer.

We talked over the plan at length, and could see good reasons for and against; but, on the whole, we thought it would pay a trial; and after three seasons' successful sales you can put us down to vote in favor of the plan.

Our locality is about 300 miles from New York, with a dozen or more cities and towns between. What nonsense and waste to send our honey to the big city, pay freight, drayage, commissions, exchange stealings (?) drummers' wages and expenses, to come half way back and sell that same honey to the grocer!—more drayage, freight, etc., and the consumer must foot all these bills. On the other hand, the retail grocer seldom buys more than five or ten cases, and it is more trouble to take care of so many customers than the one commission man. The expense of going over the route with sample case is considerable, and bad debts are nearly always in evidence; but by selling some of our neighbors' honey (this year I sold for six apiaries), and dividing the expense, it brings it down to reasonable limits.

The next question was, "How shall we pack, grade, and advertise to best please our prospective victim, the grocer?" Morton and I were partners in the retail-grocery business for several years, and that experience helped us to some points, one of the most provoking of which is the ease and certainty with which a clerk will punch a big hole in one nice section of honey with the sharp corner of the one he is trying to put back in the case. Can't we fix something, some way, so that he can not do that? Sure! Slip veneers (or sliced separators) between the rows of sections in the shipping-case—they are good for nothing else, and cost but little (and have proved a drawing card with our customers). Always have new neat shipping-cases with the non-drip cleats in the bottom, *and* the veneers. So our grocer now has his case to retail from that is neat, tasty, handy, and convenient.

Next comes the grading; and again the memories of old-time grocery days put a "bee in my bonnet."

"How much do you ask for that honey?"

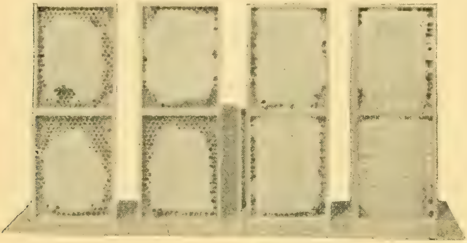
"Eighteen cents per pound, madam."

Let's see. Thirteen and a half ounces at eighteen cents per pound—um, um! Where did I lay that infernal leadpencil? um—um!

"Oh! call it fifteen cents;" and then I wonder if my customer got cheated out of a fraction of a penny or whether I did. Then that last half-dozen unsalable sections, sure to show up where they pack all weights and styles in one case! The grocer's profits are right in that half-dozen. As the days go by, and the dust settles on them more and more, with more holes punched in them as they are handled over, the profits grow beautifully less. See? Why not do the square thing by that grocer, and put in all nice full well-sealed sections, so that there will be nothing left to drag on unsold at the last end of that case;

then put the culls (that's the word) in another case by themselves, and sell them at a "cull" price? More than that, as the sections are all alike why not sell them by count to the grocer? He is sure to sell them that way to his customers. In that way there are no awkward fractions to puzzle over. He buys for twelve. He sells for fifteen. Take your choice—the last section in the case will sell as well as the first. But, you may say, honey differs so much in weight, color, sealing, travel-stain, propolis-stain; and (referring to the printed grading-rules) bulged and crooked combs (which we don't have to contend with, for our cleated separators make the bees build their combs as straight as a darning-needle stuck in a board) that it would be an impossible job to accomplish.

The engraving shows how easy it is in actual practice. I put the six sections, shown at the right on the shelf, in front of me. Picking up a section from the storage-case, a glance will generally show which grade it is. If any doubts exist, hold it near to the samples and give the lower grade the benefit of the doubt—that is, after packing, the goods should be better than the samples



NIVER'S FOUR GRADES OF HONEY.

The two sections shown at the right of the engraving we name "Fancy" (fancy white, fancy mixed, fancy buckwheat, as the case may be). The next two we name "No. 1." The two next to "No. 1," toward the left hand, is "No. 2;" the remaining two are consigned to the extractor. The "No. 2" isn't fairly shown up by the picture. The lower one is very full weight, but poorly sealed. The upper one is sealed well, but is capped off short—making it light weight.

This plan of grading and selling has proved very satisfactory with us for the last three years, and we have upward of one hundred and fifty customers who express themselves highly pleased with the system.

One more knotty problem to solve before we can take the road with that neat-looking sample case, which is a half-section of a regular shipping-case; and that is—*the price list.* Three grades each, for three kinds of honey; nine styles to price according to actual value, instead of weight. The "fancy" must bring a relatively higher price (and are worth it) in order to bring up the average; for Nos. 1 and 2 must be cheap to sell at all. It is a matter of judgment for each particular salesman to consider all the conditions of his market, and get as good a price for his goods as possible, and yet allow his friend the grocer to compete with anybody's else honey of equal quality.

Referring again to the grocer's side of the bargain, we know there are many varieties of 'em. Some grocers have a "toney" trade that demands only the best of every thing, and are willing to pay for it. We can just fit his case. That "fancy" brand was selected with an eye to capture his trade. The other dealer is situated differently—wants only cheap goods. "No. 2" is what fills his long-felt want. Now, notice! Haven't we got just what every buyer delights to find—a *variety* to select from? Doesn't that very consideration build up the enormous trade of the great city department stores, "because you can purchase there any thing, from a house and lot to a postmaster-general"—if you have the legal tender? But, my grip is packed, and the train is nearly due, and I am off after that friend of ours *the retail grocer.*

Groton, N. Y.

[It does indeed seem like poor policy to ship honey to a commission house, then in many cases have that same honey come back again almost to our very door. As friend Niver well remarks, why not save these two freights, and pocket the money yourself? Referring to the engraving and to Mr. Niver's method of grading, the reader will now see where I got the idea of having photos of certain grades of honey to take the place of grading-rules, which so far have been unable to fill the bill, for the simple reason that language is totally inadequate to describe just exactly what fancy, No. 1, etc., should be. Unfortunately, the engraving herewith shown is not a good one, although it will illustrate somewhat the idea.—Ed.]

SOLID SEALED STORES FOR WINTERING.

Treating Foul Brood; The new Section and Cleated Separator.

BY F. A. GEMMILL.

It is not often that I write for Gleanings, nor, in fact, for any other journal. There are several reasons for this; the principal one, however, being my inability to furnish much of practical value that has not been contributed by others having more experience than myself. As, however, Dr. Miller, in Stray Straws, states as follows: "F. A. Gemmill, in *Can. Bee Journal*, says he has had success wintering on solid sealed stores, and quotes McEvoy as indorsing him;" and as Mr. E. R. Root has practiced putting such combs right into the center of the brood-nest, with success, I trust you will, if not already too well supplied with more important matter, find room for this effusion.

Well, I just want to state here what I briefly stated before, and will, therefore, give an extract from the article as it appeared in the journal referred to, which may not have been seen by the readers of GLEANINGS:

> An ordinary-sized colony, in an eight-frame Langstroth hive, with from 25 to 30 lbs. of good sealed stores, can be successfully wintered outside, if perfectly packed, in my locality, without moving any of the eight frames. Of course, less stores will do if wintered in the cellar. But a fair or medium colony can be wintered splendidly on five solid sealed combs of honey or sugar syrup, with division-boards or dummies occupying the space of the removed combs. After the removal of three frames of empty comb, just put in three ordinary seven-eighths-thick division-boards in place of the combs taken out, and spaced in the same manner as if they were combs of honey, only they must be at the sides of the hive. Don't worry about the empty combs for the bees to cluster on. The insects will find room for that purpose if they require it, and will always have warm honey to eat when they want it. If you don't believe me, ask McEvoy. He is a good authority on almost every thing, including foul brood and politics. If you have a half-story of the Heddon hive containing sealed solid stores of honey, put a 2-inch rim under it, then shake out the bees from the same colony into this half of the divisible brood-chamber on or about the 15th of October, or even the first week in November, and then report how the bees wintered. I know it is a success with me, for I have many a time done it. McEvoy's plan and mine are alike, except that the clustering space is not located exactly in the same position in the hive. Try either or both, and judge for yourself. F. A. GEMMILL.
>
> P. S.—The above plans refer more particularly to outside wintering.

Now, I am not the originator of the plan, nor do I know how many may have followed such a practice; but I want to state emphatically that it was Mr. McEvoy who induced me to try his method, which he has practiced for about twenty years, so that it was he, and not myself, who deserves credit for the success I have had.

After becoming satisfied with the way things turned out I saw no reason why it should not succeed with other frames than the Langstroth, and consequently some six or seven years ago I shook the bees from 20 colonies on to a half-story of the new Heddon hive containing eight of those shallow sealed combs; and in order to provide for more room, should the occupants not be able to enter so small a dwelling, I placed a two-inch rim underneath each hive. Well, did they winter? Why, of course they did, in the very best shape, so that my success in this way was identical with Mr. McEvoy's.

To be sure, I am quite well aware *there are others* who differ with us, and think it is really a necessity to have empty combs for the bees to cluster on, etc.; and, if I mistake not, Mr. France winters in his quadruple hive on two sets of Langstroth frames, the upper story having sealed stores while the bottom story contains empty comb, which is removed in spring, leaving only one story containing the most until the colony becomes populous enough to require more room. If I am wrong, I hope Mr. France will correct me.

Mr. McElvoy claims that empty comb is a detriment rather than an advantage, as the cluster remains unbroken until the approach of spring; and, there being no brood-rearing at an unnecessary time, the bees winter better, and spring-dwindle less; in fact, they seem to boom right along when so prepared.

TREATING OR CURING FOUL BROOD.

The junior editor (E. R. R.) of GLEANINGS for Oct. 15 also gives instructions how to cure foul brood in the fall, and recommends that the bees be shaken on to foundation, and, after starving long enough to be weak, or until the diseased honey they may have taken away with them is consumed, that two or three such colonies be dumped together into one hive, and then fed. I have not the slightest doubt that his advice is sound, and will effect a cure; but say, Mr. Root, why don't you try another of McEvoy's kinks, and just shake those bees on to five solid sealed combs of honey at once, and be done with it? Possibly you will smile at such a suggestion; but let me assure you that bees have been cured after this fashion, at this time of the year (October and November), and can be so treated again. Care, of course, must be taken that all the cells be sealed, and that the combs contain honey from sound or healthy colonies. There must be no half-doing the job, either.

Now you may probably say, "Oh, my! what about the honey the bees carry in their honey-sacs?" Well, there won't be much if you go about it properly; and what little is taken will be used long before brood-rearing is started; and there being no vacant cells to store it in can do no harm. Try it.

I will merely state, in regard to this foul-brood question, that, since the securing of legislation in Ontario, I have, in company with Mr. McEvoy, the inspector (I being the assistant), visited many diseased apiaries in the Province, and have seen many ways of curing the disease, all of which, in proper hands, will succeed; but as this article is now longer than I anticipated, and Mr. McEvoy having given his methods to the public already, I need not say more.

THE NEW SECTION AND CLEATED SEPARATOR.

I have carefully read all that has been written, both by E. R. and his father, on the above subject; and as you have assured us that the cost is not going to be a determent, and as I use the T super and section-holder, I am certainly going to give the *new old system* a good trial next season. I may say that I have thought some of doing the very thing you now recommend in this line, for three or four years past, but never managed to do it. I have, the past summer, given the Pettit system of using his divider, having the round perforations $\frac{5}{16}$ and $\frac{3}{8}$ of an inch in conjunction with the wedges recommended by him for the production of comb honey, and found the outside sections were much better filled than when no divider was used.

I mention the fact of having used this system here, because Mr. Pettit preferred round perforations in his divider to having them made of several pieces with a continuous opening, as you illustrate the new separator in GLEANINGS. His reason for so doing was that he found the bees were more apt to draw out the surface of the comb and give the section, when finished, a ridgy appearance. It is quite possible, as you do not mention any thing of this nature occurring with those using the separator you describe, that no marked defect in this line has been observed. Of course, if you were compelled to furnish them with round perforations the cost would be a serious obstacle to their use.

But I must conclude; for I fear that, if I continue much longer, I shall have to apologize for writing so long, much in the same manner that Mr. Abbott did for having talked so much at the Buffalo convention; viz., that I am almost beginning to hate to see myself write, as much as he did to hear himself talk.

Stratford, Ont., Canada, Nov. 12.

[I have great confidence in Mr. McEvoy; and if he says that dumping the diseased bees on sealed combs of honey does not next summer, or some time, cause the reappearance of the disease, then I am glad to acknowledge that his way is far shorter than mine, and that bees will stand a very much better chance of wintering.

With regard to the fence, or cleated separator, our 1898 super, with plain section and a fence, will be so modified as to take in the Pettit idea; that is to say, there will not only be fences between each row of sections, but one on the outside of each outside row. This will in effect secure the same idea, only that the slots will be oblong and parallel, instead of round perforations, and I can not see why there should be any practical difference. What matters it to a bee whether the opening is square or round, so long as it can get through the same?

It is true, there will be "ridgy" comb honey if the slats are not pretty tolerably close together. Mr. Danzenbaker has found by experience that they should not be further apart than the width of ordinary perforated zinc, which, in round numbers, is about $\frac{2}{12}$ of an inch. If further apart, it has been found in some instances that the surface of the combs will show ridges just opposite the openings; and it makes a difference, too, whether the slats are narrow or wide, if I am correctly informed.—Ed.]

PIPING OF QUEENS; HOW IT IS DONE.

BY E. S. ARWINE.

Mr. Editor and Dr. Miller, are you about to turn Turk? I see you have trotted out your horse-tails. You know the dignity of a Turkish pasha depends upon the number of tails the Sultan allows him to wear. In regard to the problem of how a queen pipes, I may not understand just what you term piping. I have heard only two sounds from queens. One is the note of defiance of a young queen just emerged from her cell, and is as definitely answered by her sisters who are about ready to emerge. These sounds always remind me of the descriptions I have read of tournied victor's bugle-note of challenge, and answered by any would-be contestant for the glories of the knightly ring. I have heard this note of defiance from young queens in the cells which I held in my hand, having removed them to prevent their destruction. Surely the wings could not vibrate very freely in the cells. But this is more to the point. I was in the apiary, and heard this sound issuing from a hive; and on opening it I found a wingless queen. She had two little knots where the wings should have been. This little deformed creature was scurrying over the comb, uttering her war-cry vigorously. Certainly those little stubby wings could do very little vibrating. She had already executed all of her royal sisters but one on the outside comb, which hatched four days later. I dispatched her at once, but wished afterward I had let her live as a freak.

A balled queen utters another sound (a cry of distress), or a sound in a different key, which always sounds to my ear like a wail of agony; so I have no doubt that Cheshire is right, and speaks from his own observation.

GRANULATION OF HONEY.

Below are tables showing the time of granulation of honey from various sources, as observed in three States:

INDIANA.

White clover granulated in 3 to 6 months.
Basswood, or linden, granulated in 1 to 4 months.
Fall honey from various sources granulated in 1 to 2 months.

TEXAS.

Persimmon (April) granulated in 2 to 10 days.
Honey-locust (May) granulated in 2½ to 3 years.
Horsemint (June) granulated in 3 to 8 months.
Chittim (July) granulated in 3 to 10 months.
Cotton (July to October) granulated in 3 to 5 months.

The words in parenthesis show time of secreting. The secretion of honey by the persimmon-tree lasts about 10 or 12 days, and granulating always began before the honey was capped over. All the persimmon honey I ever took came from the wild persimmon-trees in Texas.

CALIFORNIA.

Sage, black and white, balled or buttoned, 3 to 12 m.
Sage, white (spicated or racemed) 3 to 12 m.
Barberry (pure) remains liquid indefinitely.
Barberry, mixed with sage or other honey, 1 to 2 yrs.
Tarweed (a species of aster) 20 to 40 days.

Tarweed honey granulates in the combs in from 30 to 60 days.

There are various other early honeys, such as manzanita and wild currant (January and February); live-oak (February and March); buckthorn and wild gooseberry (March and April); poison oak, or ivy (March to May). The manzanita and poison oak sometimes secrete honey very bountifully; also honey-dew (aphis honey) (August to November).

I have never kept any of the very early and late honeys to see how long they would be in granulating. Any honey extracted green (persimmon and tarweed, and possibly alfalfa, excepted) will granulate much earlier than well-ripened honey from the same source. Persimmon honey must be extracted green to get it in the liquid state. Sage honey, if left on the hive, will remain liquid indefinitely, but will become so thick and tenacious that but very little of it can be extracted without destroying the combs. I have never kept white-clover, honey-locust, horsemint, chittim, sage, or barberry honey in the sections until granulating occurred. I very much doubt whether Texas honey-locust, California sage, and barberry honeys would ever granulate if left three or four months on the hive after capping was completed.

Sage honey left in the hive ten months becomes so thick and tenacious that it will string out like soft wax, but show no indication of granules.

Dove, Cal.

* * *

RAISING QUEENS ON A STICK.

Doolittle's Method a Great Success; a Few Valuable Hints for Queen-breeders.

BY A. E. DEWAR.

The May numbers of GLEANINGS have just reached me, and I feel that I must "line up" and support my friend H. L. Jones in his remarks on the value of the "New Method of Queen-rearing."

In January last I visited the Mel Bonum Apiary, and Mr. Jones then described to me his method of utilizing drone comb for queen-cells; and although I admit that a saving in time is effected, yet, after trial, I still prefer Mr. Doolittle's plan.

I am sending you a photo showing fair average results secured, and method of procedure, which I will describe briefly. After making cells as instructed by Doolittle, insert a small quantity of royal jelly. A larva from a selected breeder is then transferred with a single stick made from a piece of section, thick at one end, to break down walls of cells, and quill-shaped at the other to lift larvæ. The frame to which they are attached is then given to the top story of a strong colony containing a queen confined under a double honey-board. Such colony is utilized right through the season for this purpose; a plentiful supply of hatching brood is given to it regularly, with the result that about 90 per cent of the cells are accepted, and well and evenly developed. Should the honey-flow cease temporarily the colony is fed liberally.

I really can not understand how any one who has a large demand for queens could resort to the old style, as there are so many advantages in using artificial cells. The necessity of mutilating good worker-brood comb is overcome, and a considerable amount of time is saved, as, by keeping a proper register, the cells can be found without overhauling all the frame of the colony, and they can be left severely alone till at least the tenth day from starting. I generally use 18 to 20 cells on each frame, but have had as many as 27 accepted in one lot. I am living about 200 miles further north than Mr. Jones, but I do not think the climate has much effect on the result so long as the colonies are strong with a plentiful supply of young bees, and a fair flow of honey.

RAISING QUEENS BY THE DOOLITTLE PLAN.

The frame in the foreground of photo shows 16 well-developed cells just ready to hatch, and they will be distributed in various nuclei, and its place will be taken by a frame with a new supply of cells, and so the process is repeat d. Queens raised by me have taken all the prizes offered at local shows during the past five years. Some 14,000 lbs. of honey, from 50 colonies, proves that they are bred for business as well as beauty.

MAILING QUEENS.

On page 335, May 1, I agree entirely with your remarks about comb honey being appreciated by bees when passing through the mails, and I hope you will continue to experiment in that line. During the past two seasons I have had eight queens from you and Doolittle; and although they were all dead I noticed that in each case the whole of the comb honey was consumed, and in one the queen was buried in the cells. Evidently her last effort had been to obtain more honey, and she died in the attempt.

I have come to the conclusion that the ventilation is of more vital importance than feed. The variation from 100° and higher, when crossing the equator, requires to be provided for as well as a probable 40° before leaving your continent. Try again.

North Rockhampton, Queensland, Aus.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

BEES FREEZING TO DEATH

Question.—I have five colonies of bees this fall, and wish to know, through the columns of GLEANINGS, whether there is any danger of their being frozen to death if I leave them outdoors, where the mercury sinks as low as thirty degrees below zero some winters. I am told that bees often freeze to death in this cold climate; and if such is the case, I fear I may not be able to winter them.

Answer.—People often say to me, "Don't your bees freeze to death out here in the cold all winter?" and I sometimes read in agricultural papers about bees freezing to death; but I always consider such talk as fallacious when it is spoken of in connection with a full colony of bees. Individual bees, or even a cluster of from fifty to one hundred, when separated from the main cluster, often freeze to death, the isolated individual bee always succumbing to the cold with a temperature lower than forty above zero, unless it warms up within 36 hours after the bee ceases to move; but a good colony of bees, in a good hive, with plenty of stores at their command, never dies from cold in a sense that can in any way be interpreted that they froze to death. If we investigate this matter we shall find that, while it is possible to freeze nearly all animal life by exposure to a very low temperature, the bees seem capable, with plenty of stores near at hand, to stand any amount of cold, so long as food remains within easy reach. To be sure, the bees on the outside of the cluster may become somewhat stiffened with cold; but those within are nearly as brisk and lively as in summer. The lamented M. Quinby, whose authority is rarely ever questioned, knew this to be a fact when he said that the bees inside the cluster, on a zero morning, could fly as readily as in July, should the cluster be suddenly thrown apart. Then Elisha Gallup, who gave us so many excellent articles on bees during the latter sixties and early seventies, speaking of a winter in Upper Canada, says, "The thermometer for sixty days in succession was not above 10° below zero, and for eight of these days the mercury was frozen; yet my bees, in box hives, with a two-inch hole at the top, and the bottom plastered up tight, came through in excellent condition." See *American Bee Journal*, Vol. 5, page 33. While bees here in Central New York were never put to so severe a test as that, yet I have it recorded in my diary where the mercury went as low as 30° below zero one winter and as low as 28° below several times; yet, so far as I could see, the bees did not materially suffer from this extreme cold. From experiments conducted with a self-registering thermometer during several winters I have found that, with a temperature of 20° below zero in the outside air, a temperature of 45 to 46 degrees above is maintained within the hive, with the bulb of the thermometer touching the outside bees of the cluster, while an equal number of experiments with the thermometer placed in the center of the cluster of bees gave a warmth of from 63 to 64 degrees above zero, when it was from 10 to 25 below outside; thus showing that the inside bees of the cluster were very far from freezing. To test this matter more thoroughly, and prove the thing beyond doubt, I took a colony one evening, when the mercury stood at ten below zero, and suspended the hive about two feet from the bottom-board, taking off all covering from the top of the hive, so they were the same as if hung in the open air, so far as bottom and top were concerned; and as the bees did not come out so as to touch the hive in any place, they were very nearly so at the sides. They were left thus all night, during which the mercury had gone as low as sixteen below zero, yet the next morning the bees were all right, although the cluster had contracted till it was little more than half as large as it was the night before. Had they been thus left till they had consumed all the stores inside the cluster, undoubtedly they would have succumbed to the cold; but in that event it would not be a case of freezing to death, but of starving; while the freezing came in as an after-consideration.

Since trying these experiments I have come to the conclusion that the freezing of bees, when in a normal condition, is an impossibility, and that all talk about such freezing is merely idle vaporings, and that the finding of bees dead and frozen only gave proof that the freezing was an effect coming after death, produced by some other cause than cold, such as starvation, bee-diarrhœa produced by long confinement, etc.

This talk about full colonies freezing to death reminds me of the story about the poor church that wanted some hymn-books. They needed the books badly, but did not know where the money to purchase them was to come from. So they called a meeting and instructed the clerk to write to all the book firms whose address he could find, for lowest prices on fifty books; then he adjourned the meeting for two weeks till a reply could be gotten. At the appointed time they came together to hear the result, which was that 50 cents each, or $25.00 for the lot, was the best that could be done, with one exception. That exception offered them the books for five cents each, or $2.50 for the lot of fifty books providing they would take books having a few advertisements in them. The matter was talked over, and it was thought that a few advertisements in the back part of the book (as we often see on the covers of our Sunday-school lesson-helps) would do no particular harm, so they instructed the clerk to order the five-cent books. He did so. It so happened that Christmas came on Sunday that year, and the hymn-books arrived late Saturday night. The sexton carried them to the church, and hurriedly distributed them among the pews, having no time to look at them. The congregation arrived; and the pastor, arising in the pulpit, said that, as it was Christmas morning, it would be appropriate to begin their sabbath worship by singing the hymn commencing with "Hark! the herald angels sing," etc., and read the first line to the hymn from his own book, and sat down. The chorister struck up, and their surprise and consternation can be imagined when they found themselves singing:

> Hark! the herald angels sing!
> Beecham's pills are just the thing;
> Always sure and very mild,
> Two for man and one for child.

So with some people who would instruct along the line of bee-keeping pursuits; they suppose they are singing the truth, when afterward it proves to be only advertising for themselves, or idle vaporings of their imagination, or something they have heard in the gossip at the "corner grocery."

[At the time I called on friend Doolittle, and just before leaving, I said to him that I wished he would sprinkle some of the good stories, that he had given us in his convention talks, into his regular articles for print. He hesitated somewhat, saying that he could feel the pulse of an *audience*, but could not determine the mood of *readers*, whom he could not see, and for that reason he was afraid to venture. I told him to have no fears on that score—to sprinkle in the salt and spice just the same whenever they would flavor a dish of dry facts. He did not give me a decided answer that day; but a few days ago he sent the article above, and along with it a private note, in which he said, referring to the anecdote, "When it is written on cold paper it seems stale, and unworthy of a place in a sober article on bees; so I leave it to you to put it in print or to leave it out, as it seems good in your sight. If you publish it, and it takes, I can give more." Yes, indeed, give us more, friend D. Our Borodino bee-keeper speaks in a clear, strong voice; he is a large man (large in two senses) and the enthusiasm that he throws into his talks is accompanied by a captivating sparkle of the eyes and this sort of personality may, in some cases, make some of his stories sound better than they read, but I have no doubt that they will all read well.—Ed.]

Heads of Grain FROM DIFFERENT FIELDS

I live in Richmond, Va. I don't suppose we have as strong a honey-harvest as our brothers further north, and not so long a one as our brothers in the far South, so I should like to ask a few questions:

1. Do you think it will pay to run the business near this place?

2. Will bees store as much honey in large one-story hives as in two story?

3. Can a strong colony of bees store enough in a one-story eight-frame hive to carry them through the winter and raise brood enough to keep strong?

4. Can I keep a queen all winter with a pint of bees, on three frames of combs, and raise a large colony if I feed well? and must I give them any thing else except syrup? If so, what else? Must I feed any thing for pollen? If so what?

5. What is the best way to winter queens?

6. Can you winter two queens in one hive with a queen excluder between them?

7. Can you extract honey from brood-frames without hurting the young brood?

8. Will the extra-light section foundation work all right in brood-frames if wired?

9. Will bees work as well with frames crosswise as they will from front to back?

VIRGINIA.

[1. I think it would.

2. Not as a general rule. In localities where the season is short and the flow moderate, the single-story hive would probably give better results—that is to say, secure all the honey at less expense than the two story; but in localities where there is a long honey-flow, the two-story would do better for a certain length of time.

3. Yes, if they do not use it up in the fall, before winter sets in. If you have a late flow from buckwheat or some other good source, then if the colony fills its hive it will have a great plenty for winter. But an eight-frame hive full of honey by the middle of July, with no further honey-flows, would require to be fed, probably, in the fall in order to give the requisite amount of stores.

4. Yes, if you are skillful enough; but do not give them any thing but good granulated-sugar syrup.

5. The best way to winter queens is in strong colonies, in hives properly supplied with stores, and, if outdoors, in double-walled hives packed with chaff, planer-shavings, or sawdust.

6. Not as a general rule. I should expect

war in that family very shortly. Two queens in one hive, under average conditions, do not get along any better than two bosses in a shop or two cooks in a kitchen.

7. Yes, but it is not advisable. The best practice is to let combs containing brood entirely alone so far as extracting is concerned.

8. Yes and no. If a narrow starter is used it would do without wires It would also answer in full sheets providing the wires were put close enough together, say about one inch apart; but as a general rule it is cheaper and more practicable to use ordinary brood foundation, such as is made for the purpose ; and then the combs, when drawn out will be none too strong, even when built over wires.

9 Some bee-keepers think not; but, so far as I am able to judge, those bee-keepers who use frames crosswise produce just as much honey as those who use frames the other way of the brood nest. It is only a question of convenience. The frames that are used crosswise are shorter, smaller, and, consequently, there are more of them to handle.—ED.]

WAX PRODUCTION; IS IT PROFITABLE? WING-CLIPPING; HOW TO FIND QUEENS IN LARGE COLONIES.

1. How is an apiary run to secure a large amount of wax?

2. Does this pay better than honey?

3. Is spring or fall the best time to clip queens' wings?

4. What is the easiest way of finding the queen in hives that are just running over with bees? E. O. H.

Philadelphia, Nov. 10.

[1, 2. The production of wax alone is not profitable except in localities where the honey-flow is continuous almost the whole year round, and the honey is cheap and wax expensive, as for instance in Mexico or the West Indies. I should not know exactly how to proceed in running for wax alone; but my notion would be to cut out the combs every few days, and put them in a solar wax-extractor. The honey settling to the bottom could be drawn off and given to the bees again ; and the wax forming at the top could be set aside in irregular chunks until enough were secured to cake them in pieces suitable for market.

3. There is not much difference. Wing-clipping should usually be avoided when colonies are strong; and that operation should usually be performed either in the spring or fall—generally in the spring, for then the apiarist is sure of having the wing clipped *before* the swarming season comes on. At our out-yard last summer, in the case of some of our strong colonies with unclipped queens, I simply put on entrance-guards.

4. There is no easy way that I know of. Many a time have I hunted through populous colonies to find a queen whose wings were not clipped, and whose bees were pretty nearly ready to swarm. In some instances these colonies were some we purchased, and, of course, the queens' wings had not been clipped. In any case it is my practice, if I do not find the queen the first two times in looking over the frames, to shut the hive up, then in two hours more I take another look. If I *still* fail to find her, I remove the whole stand and put another hive in its place. At the entrance of the new hive I place perforated zinc ; after which I shake the bees out in front of the hive on the ground, compelling them all to pass through the zinc. If there is a queen in that hive, and she is not too small, she is sure to be caught. I have had to do this in a few instances with black bees. It is a characteristic of these bees that they will boil over, and run like a flock of sheep from one frame to another; and the queens hiding—why, they are adepts at it. When I take the time to try to find a black queen, I want two pairs of eyes so that both sides of the comb can be seen at once.—ED.]

LARGE ENTRANCES.

I had two new ten-frame L. hives with every frame filled with foundation. A large double swarm was hived in each of these hives the last week of June. The D. bottom-boards were turned over, giving the winter entrance. Then the hives were raised ⅜ inch by small blocks under the front corners and a strip under the back, giving ⅜ inch each side, and 1⅜ inches in front. Results — no lying outside, and busy work every day when possible. The bees were packed down solid to the bottom-board, and at no time could I look from one side of the hive to the other side under the frames. There was always a bridge for them to climb on to the frames, but no comb was built in this space. When the hot weather was over, the board was inverted, giving them an entrance only in front. The season proved to be a poor one; but these two swarms gave me over 70 lbs. surplus, of which about half was extracted. Each hive was supplied with two supers. Give me large swarms and large entrances, with shade. J. L. HUBBARD.

Hendersonville, N. C., Nov. 11.

LARGE ENTRANCES; GOOD RESULTS SECURED BY THEIR USE.

I have thought for years that a hive-entrance ⅜ x 6 or 8 inches was too small, both summer and winter ; and after studying a long time I changed a lot of my chaff-hive entrances last winter for use this past season. With keyhole-saw I cut a strip 1¼ in. wide the whole width of inside, 14¼ ; and as my old entrance had a slide held in place with metal springs I have the two combined, so, if need be, I can use the small one and regulate it down to one bee or none.

I fitted in stays between the two thicknesses (outside and inside) to make even work. A full entrance of this large size is too much some of the seasons, say in dearth of honey, as the robbers would take advantage. But if no small entrance is provided, one end of the block can be inserted, and regulate the size in that way.

I never did a thing that seems so useful. There isn't that lot of bees fanning to keep cool, and great clusters of bees on the outside of the hives as before ; and I never had bees work as these have through the large entrance.

In addition to this I've made rims 1½ in. high, and wide enough to take 8 L-spaced frames, the same extended out to fit against the inside of the front and back of my chaff hive, and just the same length inside as the common inside or lower story. Now I have raised my frames and bees, and put a rim under, so there is a 1½-in. space under the bottom of the frames. Thus I can easily clean out dead bees when in the cellar in winter, and shall use more packing over the bees than usual. You see the division-boards can be used the same, and the packing makes all neat and snug. It seems to me you would do a good thing by adopting something of this kind. E. P. Churchill.

Hallowell, Me., Oct. 18.

[Any one who will use a large entrance in summer can't fail to come to the same conclusion you have. How stupid we have been all these years, compelling the bees to use a poorly ventilated hive, and crowd and tumble over each other in order to get into a hive during the height of the flow.—Ed.]

THE NEW FENCE AND THE PETTIT SYSTEM.

I too am very much interested in the new style of separator and section. As I understand it, the separators are to be made of narrow strips, with narrow spaces between. Referring to Gleanings for Jan. 15, 1897, page 52, top of right-hand column, Mr. S. T. Pettit says: "Dividers made of slats ¼ inch apart leave the sections ridgy, reminding one of a miniature washboard." This he obviated by boring the divider full of $\frac{5}{16}$-inch holes instead of leaving the ¼-inch spaces. Now, would there not be the same trouble in the new separators? Has any one tried, during the past season, the plan advocated by Mr. Pettit in the same article, commencing on page 51, entitled "A new system of taking comb honey; how to get the bees to fill the outside sections as quickly and as nicely as those in the center of the super"? If so, I should like to hear the results, and also how Mr. Pettit himself has succeeded on that line the past season. It seems to me this idea, taken in connection with the no-bee-way sections, might make quite a difference in the crop of nice comb honey, especially here in the East, where in many sections the honey-flow is not as copious as further west, and we need to use every means to secure all the honey our bees are capable of gathering, and secure it in the best possible condition.

Natick, Mass. R. J. Fox.

[See answer to F. A. Gemmill, page 846 this issue.—Ed.]

NO-BEE-SPACE SECTIONS FAVORED.

Mr. Root:—I see you wish to hear from those who have used sections with no bee-space. I have used about a thousand of this kind this season, and I like them so well that I will change all my supers to take this kind. All you say about their better appearance is true. I used cleats on the separators ⅛x¼, but this is hardly wide enough or thick enough. They should be $\frac{5}{16}$ wide, and a little more than ⅛ thick. It will require very careful measurements to get them just right; for if they should be a little too thick there would be trouble about crating. I find they will bulge out the combs a little just below the separator. I use plain separators 3½ inches wide. I have not tried slotted separators, but believe they would be better.

There is only one fault that I have found in using this arrangement; and that is, in cleating the separators they *must* be put on accurately. I use ½-in. wire nails, driving them clear through, and clinching them. Glue would perhaps be better and quicker.

W. C. Gathright.

Dona Ana, New Mex., Oct. 30.

[The fences we shall make and sell will be put together with automatic machinery, and will have to be just right. Yes, if the slats are too far apart the combs will be ridgy every time. See answer in this issue to F. A. Gemmill, on page 846.—Ed.]

THE DEEP-CELL FOUNDATION A SUCCESS.

Last spring you sent me samples of deep-cell foundation. These I placed in sections, putting two sections into supers with some partially drawn combs and some thin foundation starters. In every case the deep-cell foundation was the first to be worked on, and in one super those two sections were the only ones properly filled, others varying from nothing to ¾ full. Deep-cell foundation suits me well in this year's trial. L. D. Stilson.

York, Neb., Nov. 10.

HONEY RUINED BY SOOT.

Honey is a failure here. This is a manufacturing town, and the soot ruins all the honey for miles. Owing to the continued dry weather this year we shall not be able to send you any seed. D. L. Murff.

Anniston, Ala., Oct. 28.

[It has been before stated that honey-producing in a manufacturing town where there is a large amount of smoke is unprofitable. It seems a little hard to believe that soot could prevent the blossoms from yielding nectar, but it may be true. I'd like to have reports from others.—Ed.]

THE FLORA ON THE COAST OF SOUTH CAROLINA.

In reply to query by "East Coast," page 739, I beg leave to say that, while we are rather outside of the limit—a little more than 100 miles from the coast—I will give enough information to provoke further correspondence.

We are told that in portions of Eastern North Carolina (in the swamp region) bees do well. We much prefer to speak of the territory west of this, Charlotte, N. C., 100 miles, or along the eastern slope of the Blue Ridge range, where we have fine bee-pasture. The poplar (tulip), holly-locust, and fruit-trees furnish the early or May crop. June brings linn, persimmon, and redwood, while the sour-wood and other minor sources furnish the July crop. It was the writer's pleasure to spend five weeks, in 1895, prospecting in this favored locality.

A mountain location is, in my judgment, the only safe one, owing to its unlimited forests too rough to be visited by the ax or plow.

Here we get fair yields, but of an inferior quality. Ours is a cultivated field—no forests. Cotton and the asters give our best crops.

Prices are better than north or east. We get 8 and 9 cts. for extracted in a jobbing way. Four cents was C. F. Muth's best offer for our product. The tulip furnishes the only *dark* honey in our mountains. A. L. BEACH.

Steel Creek, N. C., Nov. 10.

DEATH OF A GREAT BEE-KEEPER.

I was struck, on opening the local paper this morning, to read of the death of Mr. Bonnier Georges de Layens, 63 years old. I hastened, when I went to France, to make the acquaintance of the now departed eminent French bee-keeper. He died on the 23d of October, of an apopleptic stroke. The struggle lasted about seven hours. He did not regain consciousness. His hive is well known all over France, where it has always had to compete with Charles Dadant's. The latter finally has the preference. De Layens came here to gather some more flowers to complete his "Flora," of which several editions are already out. He was born in Lille on the 6th of January, 1834. His features were not changed at all. His body will be taken to Paris, to the family tomb, as he was only temporarily here. PH. J. BALDENSPERGER.

Nice, France, Oct. 24.

MOVING TO GET MORE PASTURE; NEIGHBORS' BEES.

Bees have done well this season; but in order to get a good honey yield I had to move most of them two miles to fall blossoms. My home yard is overcrowded on account of neighbors' bees. I got 2000 lbs. of comb honey from 35 colonies, in two months, besides about 300 lbs. extracted from unfinished sections. It paid me to move them, you see

Filion, Mich., Nov. 16. I. S. TILT.

This was the best honey season we have had for quite a time. From 20 hives I took 1400 lbs. in sections, and now have 50, all from the 20, spring count. I have sold all this honey around home. J. E. HENDERSON.

Elm Grove, W. Va., Nov. 4.

How doth the little busy bee
 Improve each shining hour
In gathering honey all the day
 From every opening flower!

But this is the way it has recently been paraphrased in one of the great dailies. Besides a little mixture of gender, there is a little contradiction of facts:

How doth the little busy bee
 Delight to bark and bite!
He gathers beeswax all the day,
 But his sting is out of sight.

BEGINNERS' QUESTION
BY E.R. ROOT.

T. W. M., Ill.—It is too late to stimulate brood-rearing. You had better unite your weak colonies, as you suggest. For particulars in regard to uniting, see our A B C of Bee Culture.

E. C. R., Ind.—I would not advise you to buy bees at this time of the year, unless you can get them at a bargain, and have had sufficient experience to enable you to winter bees successfully. It is already too late to do much in feeding them up as they require.

M. S. G., Wis.—Tarred paper used in the construction of a building will not in any way injure or affect bees. Our house-apiary, illustrated and described in our A B C of Bee Culture, is lined on the inside with tarred paper; but we never could see that it was in any way obnoxious to the bees.

A. B., Ohio.—I see no reason at all why you could not move your bees in a wagon without springs, providing you put hay or straw in the bottom, as you suggest. Of course, you would need to drive more carefully and more slowly; but we have moved bees several times successfully in just such a wagon.

F. P., N. Y.—Yours of Nov. 5 is at hand, stating you have a furnace in one compartment of your cellar, and that the other part is separated off by a board partition. If you can keep the temperature in this part of the cellar as low as 40 or 45 degrees, certainly not higher than 50 during the greater part of the winter, I think you can winter bees there all right. The temperature should not go below 40 degrees, at least for any great length of time.

J. H. H., La.—We usually figure on about 10 pounds of honey per Langstroth frame—frames that are fairly well filled with honey, while 25 pounds of honey, scattered through three or four frames, is enough to carry the bees safely through the winter. If you have four or five combs fairly well filled with honey, leave them in the hive. It will be all the better for the bees next spring.

Your idea is all right; namely, to give your surplus combs to other colonies that may need it that are short of stores. This is the practice that is usually pursued by bee-keepers generally.

J. J. V., Mo.—I understand now what you mean by the controller. This, as I understand it, is only the Langdon non-swarmer over which, a few years ago, bee-keepers were very enthusiastic, but which now has been abandoned as impracticable, and as not carrying out the expectations of its friends We sold them one season, but finally discontinued selling them, as reports showed it did not work as expected. I should judge that the leaf from the catalog is from an old one that is not now issued by the party in question.

L. E. B., Mass.—If I understand your question, you desire to know how many acres it would take to support 1000 colonies. It would be impossible to give you any definite answer, because so much would depend upon conditions and circumstances; but the average locality in the North will not support much over 100 colonies, and such an apiary ought to have a range of a radius of about 1½ miles. Theoretically, another hundred colonies should be in another circle just touching the first one, the second circle being also three miles across, and another circle of the same size just touching the two circles already mentioned, and so on. You will find this question fully discussed in our A B C of Bee Culture, under the heading of "Out-apiaries."

☛ *W. H. L., Mich.*—1. Is the odor of coal-tar disagreeable to bees? [Not to any appreciable extent.] 2. Would they reject a hive if the bottom-board were painted with coal-tar on both sides and the edges? [No.] 3. Would the odor of coal-tar taint honey perceptibly? [It probably would if the honey were stored in barrels smeared inside with coal-tar.]

By
E R
Root
Editorial

IN our last issue I took so much space that I will take but very little this time, and give the space to our correspondents. In our next issue I hope to begin again my trip among bee-keepers.

GLEANINGS can be very truthfully called an illustrated bee-journal. While it makes no pretension of competing with the illustrated magazines of the day, it simply attempts to show kinks and ideas by means of pictures rather than by language, which is very often inadequate.

IT does not seem to be generally understood yet that the new fence (cleated separator), and plain section (no bee-way), can be used in old-style T supers and section-holders, the same as the old section. In the case of the section-holder the cleats on the fence, together with the plain section, make exactly 1⅞ inch. The only change necessary is to purchase fences. If you do not see how it will come out, send us 10 cts. and we will send you a sample fence with section, which, when you have tried in your super, you will see it will come out "shust the fit," as Rambler says. You will need to tell us in ordering a sample what style of super it is to be used in—a T super, or section-holder arrangement.

THE *Agricultural Gazette*, of New South Wales, for September, 1897, issued by the Dep't of Agriculture, Sydney, Aus., contains an article on the influence of bees on crops, by Albert Gale. The writer shows quite conclusively the important bearing that bees have in mingling pollen from plant to plant. To quote him, he says:

> I think I have pointed out clearly that there is no insect so highly developed for carrying the imperatively essential pollen from flower to flower as the hive bees. Their intelligence, their energy, their social habits, and the ease with which they are kept under control, stamp them at once as no mean ally to the tiller of the soil. The practical bee-keeper in any district is a confederate that should be welcome to all.

It is to be hoped that the whole series of articles on this subject, by Mr. Gale, may be put in pamphlet form for free distribution, as they form a very comprehensive examination of this subject.

SOMETHING NEW UNDER THE SUN.

YES, I have found something absolutely *new* in bee-literature. So novel and original is it that I am going to present a few paragraphs from an article entitled "The Life and Battles of Bees," by George E. Walsh, published in the *Chautauquan* for September. The writer sets forth in flowing English some of the conflicts the bees have among themselves. "Uniting," he says, "while understood by the modern bee-keeper, is a very difficult operation, and has been accomplished only after long experience and many failures; for the natural antipathies of the members of the two flocks are such as to prevent association except under extraordinary conditions." And then, in speaking of the ordinary Italian bees and the black bees of the woods he gives us this piece of information: "The hostility between the wild bees and the domesticated colony will not permit them to unite."

Now listen to this, for he is going to tell us something we never knew before—how it is that bees can recognize robbers. Just read:

> At the entrance of every well-filled hive several sentinels will be found lingering, and upon the appearance of a bee they challenge it. One of the sentinels extends its tongue; and if the new comer belongs to the colony it will answer by proffering a sample of its honey; but if the bee should prove to be an intruder the sentinels pounce upon it immediately and sting it to death. Occasionally a stray bee will attempt to obtain entrance into a well-filled hive in this way, and it will offer a sample of the nectar from its honey-sac; but the wary sentinels are not often deceived, and the intruding bee pays the penalty of its temerity.

Here again is another sample:

> Inside the hive, breastworks and fortifications are constructed, tier upon tier, and the attacking forces are compelled to pass through holes and narrow cuts.

The writer now goes on to tell about the condition of queenless colonies. He says, and very truly, that there will be small protuberances like peanuts sticking out of the combs; and if these are unmolested a queen will hatch. So far we all agree with him; but now read what he says regarding the philosophy of introducing by the modern candy method:

> But now a queen-bee from the South or an imported Italian queen is obtained and introduced in one of the modern queen-cages. So closely imitated is the ordinary cell of a queen-bee by this cage that the hive workers are readily deceived. The cork is removed from the small cage, and the opening smeared over with sugar paste. When this is carefully inserted in the hive, on top of the frames, over the cluster, the bees will instantly pounce upon it and liberate the

> queen by eating through the sugar paste. Poor deluded souls! in their innocence they think they have hatched out a queen to take the place of their dead one, and there is undoubtedly great rejoicing in the hive.

Poor deluded souls, indeed! Mr. Walsh's great heart of sympathy is sublime. There are several other statements that do not smack of real experience, but I will give only one more on this wind-up of the article.

> It should be remembered that bees deserve our respect and protection, and that to kill a bee is to waste a pound of honey.

A bee worth a pound of honey! Would it were so! If it were, a colony that produced 50 lbs. of honey would contain just *50 bees.* Whew!

I am surprised that the editors of the *Chautauquan* did not recognize the absurdity of some of the preposterous statements, even though they were not professional bee-keepers. Why! the idea of making a queen-cage out of *wire cloth* so exactly the *fac-simile* of a queen-cell, and smearing over the end of it with candy so that even the bees (deluded souls) could not detect it from their own manufacture! Almost any one ought to know better than to make such a statement as that. It is very evident that Mr. Walsh got his information entirely from books, and that his vivid imagination quite ran away with his good sense. As a bee-keeper we have never before heard of him.

HOW THE OHIO PURE-FOOD LAWS WORK.

OUR Mr. Weed, who has been selling our honey in Akron, has run across some glucose mixtures put up by a concern notorious for selling adulterated honey and syrups. This same firm evidently sell their mixtures as *pure goods* in States where the laws are lax or are not very rigidly enforced. In a State like Ohio, for instance, where we have a good pure-food law, and a food commissioner who sees that said law is enforced, they put out the same goods, *but* on the back of the package they put the formula of the so-called honey, in fine print, which they are obliged to do to conform to our Ohio law. Their expectation is, of course, that the consumer will not stop to read the fine print, but take it as pure goods.

Well, it seems this concern, through its representative, sold a consignment of the stuff in jelly-tumblers to a firm in a town near Akron. They represented, at the time of making the sale, that the goods were pure; but on their arrival, or at least soon after, it was discovered that there was a small label on the back of the tumbler, containing the formula of glucose, honey, and sugar. But the goods had been paid for, and the grocer had the stuff on his hands. It would not sell, and he had no heart to push it either.

We expect to give the name of this glucoser, and all the facts in the case to the U. S. B. K. U. Personally, I believe it is a good case; and if the Union does nothing more than to expose the name of the firm, after securing the proper evidence in the form of affidavits, it will have done a good work.

From the foregoing it will be noted that the practical effect of our Ohio pure-food laws is to do away with glucose competition in honey. Other States have good pure-food laws; but they lack good food commissioners to enforce them. Now, what can be done in Ohio can be done in other States; and I am not sure but that this would be another very good field for the U. S. B. K. U. to work in; namely, to punch up commissioners who are negligent of their duties; and, failing to enforce the laws, to secure the appointment of other men in their places. We need men with backbone to enforce pure-food laws, just as we want them in every responsible position.

CASTING BREAD UPON THE WATERS; HOW TO WHET THE APPETITE OF CONSUMERS FOR HONEY.

IN order to disseminate information in regard to honey as a food, and to create a taste for it, we have been inclosing our honey-leaflet in every one of the envelopes that go out of our office. One such leaflet found its way to H. W. Richardson, Section Director of the Weather Bureau of the U. S. Dep't of Agriculture, whose office is located at Columbus, O. In a letter dated Nov. 19 he writes:

> I thought your little circular on honey so interesting that I gave a copy to a reporter, requesting him to give you credit for extracts made from circular, which I see he did not do, as perhaps the newspaper regarded the same as an advertisement. Anyhow, the publication won't hurt the A. I. Root Co., as several parties have applied to me for copies of "bulletin," and I have referred them to you. If you could send me a dozen of these circulars I should appreciate it.

The result was, the reporter gave it a handsome write-up, making liberal extracts, the same appearing in the Columbus *Dispatch* of Nov. 18. This started a good many inquiries in regard to this leaflet that was styled, by the reporter, "A Bulletin issued from the Weather Station." I suppose Uncle Sam, in the reporter's estimation, gave it a sort of "tone," and that is why he gave it such a liberal notice. Well, it has done a good deal of good already.

This point struck me right here: Suppose bee-keepers were to hand a copy of this honey-leaflet to the editors of their local papers, and ask them to give it a write-up or to make extracts from it. Who knows but it would do a great deal in the way of whetting up the appetite of consumers for honey? The Section Director of the Weather Bureau at Columbus regrets that the reporter entirely ignored the name of The A. I. Root Co. We do not care a fig about that. All we care for is that, somehow or in some manner, consumers shall know about the value of honey as a food. Credit? Why, we do not want any; and I am rather of the opinion that, if our name had been used in connection with such a write-up, people would have turned away, thinking it was a neatly gotten-up advertisement. Let all names be omitted, but let the *facts* go traveling around the world. Visit your reporters and local editors. We will furnish copies free for such purposes.

Another thought comes in right here: If every bee-keeper would mail a copy of the honey-leaflet in letters that he writes it would help greatly to scatter the right kind of seed.

It is by casting our bread upon the waters that we reap.

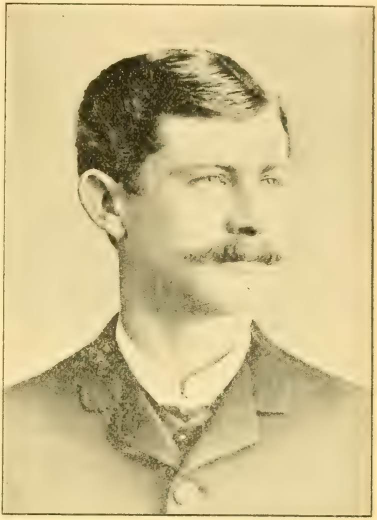
M. G. CHASE, THE GILT-EDGED-HONEY MAN.

SOME little time ago I gave a picture of Vernon Burt as one of the bee-keepers in the immediate vicinity of Medina whom it is my privilege and pleasure to consult occasionally on the various subjects that pertain to our pursuit. Mr. M. G. Chase, whose postoffice address is Whittlesey, some eight or nine miles southwest of here, is another local bee-keeper with whom it is my privilege to talk bees. Whenever a new thing is brought out at the Home of the Honey-bees the opinion of both of these men is sought, and the following season they are given samples of the new things to test. During the past season, for instance, both tried for us the deep-cell foundation, and during years past they have tested for us in a similar way comb-honey supers, and various styles of self-spacing frames.

While Mr. Burt makes bee-keeping a specialty, running two apiaries, Mr. Chase manages a 200-acre farm, besides an apiary that varies anywhere from 75 to 125 colonies. He is not only a first-class progressive farmer, but an excellent bee-keeper. If there is any man in this county or in the State of Ohio—yes, and I might say in the whole United States—who produces a really gilt-edged article of comb honey, it is M. G. Chase; and he is likewise one of the first to get his honey on the market.

He took his start in bee-keeping from his father, who had 100 colonies in box hives; but the younger Chase could not keep them that way, and accordingly transferred them, increasing them to 125 the first year; and, if I remember correctly, he secured 22 cents a pound for his honey. This was away along in the early 70's. But his good fortune was quickly followed by disaster in wintering. Just how many he lost I do not know; but he quickly recovered, and ever since has been making the apiary turn out some extra nice honey. His largest yield I think, was 2700 lbs. from 20 colonies, while his smallest yield was about 800 lbs. from 80 colonies. Of late years he has not had the seasons that he formerly had. Basswoods have been cut off around him, and the clovers have disappeared; but somehow even in the poorest seasons he manages to bring up some honey when nearly everybody complains of not getting any, unless it is our friend Vernon Burt and Mr. Chase's brother-in law, Mr. U. Prince.

And that reminds me that Mr. Prince is another of my consulting bee-keepers. The other day, when he called at our office I showed him the fence and plain sections. He would like to use them next season, but he had so many old fixtures that he could not afford to throw them away; but he was interested enough to try a few when I told him he could use his old supers. Well, this Mr. Prince runs two apiaries, or did the last I knew. The out-yard is managed on the Elwood plan to prevent swarming; namely, the queens are caged in the hives at the approach of the swarming season, and in eight or nine days the cells are cut out, and again in eight days more. Mr. Prince says it is a great deal of work, but that, by that plan, he can handle swarms when it is convenient for him to go to the yard. Mr. Prince also secures a nice lot of honey every season.



M. G. CHASE.

I take pleasure in introducing both Mr. Chase and Mr. Prince. They, together with Vernon Burt and Dr. Miller (who is also my near neighbor), act as a sort of balance-wheel on the boys; and I do not deny that we sometimes need one.

U. PRINCE.

OURSELVES AND OUR NEIGHBORS

BY A. I. ROOT.

And when they had gathered the church together they rehearsed all that God had done with them.—Acts 14 : 27.

Last Sunday a new Methodist church was dedicated in our town. It rained the day before, it rained in the morning, and it rained all day, so that the congregations in all the churches were probably sparse, and we thought it quite likely there would not be a very good gathering at the new church, and that they surely would not be able to raise the money to pay for it. It cost $12,500. The sum of $9000 had been already subscribed, so that only $3500 was to be raised. During the day I attended our own church; but in the evening, as they had a sort of union service at the new church, I was present, and was somewhat surprised to learn that the whole of the $3500, and *more too*, had been subscribed at the forenoon's service, in spite of the rain. The good brother who managed the matter told us that in matters of that sort there were always some subscriptions that, owing to accidents, sickness, or death, would probably not be paid; and he urged that they might raise about $250 during the evening service, so as to be sure to have enough; and he mentioned, likewise, that there were still some things very much needed in regard to the church, if they had the money.

It was a gray-haired veteran who called for the subscriptions. He had his $250 in a very short time. I enjoy meeting men of skill. I like to see a skilled mechanic. I like to converse with a finished scholar; and I enjoy above all things watching a man who has the power to manipulate a congregation of people —I mean, of course, where he manipulates them for God's righteousness and God's kingdom. It seems to me a little strange that a people who can not all of themselves and among themselves raise money to pay a debt will do it easily when they get some old hand in among them to stir them up to a sense of their shortcomings. I do not know very much about such things; but I have often heard that they pay a stranger from fifty to a hundred dollars, and even more, to come in among them and tell them what they *know already* they ought to do.

On Tuesday evening we had a sort of union meeting in this same church. The ministers of the five churches of Medina all sat on one platform, and we had five short sermons. Some of our older readers may remember that it was during a union meeting something over twenty years ago that I broke away from indifference and skepticism, and united with God's people; and during the evening I speak of, it kept coming constantly into my mind that my first public testimony was in a union meeting in that same Methodist church—not in the same building, but in the old building that stood on the same ground. One of the ministers was an old white-haired veteran. He told us about church people and churchgoing fifty years ago. As he described it so vividly my mind went back to the meetings in the schoolhouse.

He brought many smiles to the faces of the younger ones by telling them how those evening meetings were lighted. The people who were most interested brought each a tallow candle. The candle was first lighted, then tipped over till the tallow dropped on the corner of the desk ; then the broad blunt end of the tallow dip was held down in the melted grease until it "froze fast." The candle then stood securely during the whole evening unless somebody bumped it over. Another way was to stick a penknife through a candle and drive the blade into the window-casing. This did very well unless the room became too warm, and somebody wanted a window let down a little. Then the draft would make the candle "flare." Pretty soon the tallow would run down and drop on somebody's Sunday clothes —perhaps on some young man's coat that he had put on in order to take his "best girl" to "meeting." Sometimes the melted liquid dropped on some good lady's Sunday bonnet. The speaker stated that people were then a good deal as they are now ; and sometimes, so Elder Cooley told us, there was "more grease on the bonnet than there was Christian grace in the heart" after the accident had happened. He said the minister sometimes used to ride horseback ten or fifteen miles to meet his appointment, and the people would hardly be satisfied, after having taken pains to go so far, unless he gave them a sermon at least two hours long. The people usually came in lumber-wagons, and he said the wagons were almost always full. In fact, they would drive around to the neighbors' homes, and the invitation to go to the meeting was seldom unheeded.

What a change fifty years have brought! A good many of the younger people who read this probably never saw a tallow candle in all their lives. Huber has seen them, for a few nights ago he had one in a Chinese lantern dangling at the tail—no, it was not at the tail, for the *kite* that carried the lantern was a modern "tailless" one. It dodged about and "cavorted" over the town during the dark night for an hour or two ; and very likely lots of people will believe, as long as they live, they actually did get a glimpse of the "airship." Huber tried lamps, but the old-fashioned sperm candle seemed to answer best.

Well, the candles are gone ; and now, in the *churches*, at least, the *lamps* are going. This beautiful new chuch was lighted by electricity. In the very center of the dome overhead a cluster of sparkling globes flashed and glowed like a beautiful flower, each petal of which was like unto a shining meteor ; and lesser lights were scattered here and there lower down on the ceiling and along the walls. They were lighted as if by a flash of lightning, and extinguished as quickly. How convenient ! how beautiful ! how grand ! No matter how many times I see these incandescent globes—no matter if I do meet them now at every turn in my *own home*, again and again have I raised my heart in thanksgiving and praise to God for what electricity is doing to light and cheer our homes. Already electric globes are kept going by the power of the wind that sweeps over our heads, and they are getting to be more and more common. This church was not only lighted by electricity, but it was warmed by steam. The radiators are *ornamental* as well as useful; and by their use the room can be evenly warmed all over so there are no cold spots and almost no spots that are *too* warm. The decoration is new and very pretty. On a large plain plastered wall the figure of a shepherd's crook and of a cross is seen resting in the clouds. I looked at it again and again, and enjoyed it as I did the strains of beautiful music from the trained choir. And this reminds me that the veteran elder who told about the old times spoke about the singing in the old log schoolhouses. He said that, away back in those early days, they had some old hymns that, in his opinion, would never be surpassed. He mentioned especially the one beginning—

A charge to keep I have.
A God to glorify.

He turned to the choir, and said: "Oh! yes, you can sing it, I know you can; but you can't sing it as they did then."

Some of them smiled because he was so very positive; but he remarked again, "I beg your pardon, but you can't do it, neither can any man or woman living. Those things are gone by."

Although they had some fierce conflicts in the church in those times, they had considerable of the grace of God also. When it first began to be customary to have an organ for worship, one old deacon stood out very stubbornly He was a man of wealth and influence. Well, the good church people, after exhausting their eloquence and grace in trying to soften him, *prayed* for him, and prayed that God would help them to get an organ. Another meeting was held, and, greatly to their astonishment, the good brother wound up his remarks something in this wise:

"Friends, if you absolutely insist on worshiping God by machinery, let us not have any poor affair brought into our church. We want one of the very best 'machines' made, and I will help pay for it."

We may gather two lessons from this incident. First, prayer avails when nothing else will move the stubborn heart. Second, there is oftentimes a good deal of grace in a man, even when he seems, to outward view, all stubbornness and flint.

Then he spoke of the progress that is being made, not only in electric lighting, steam heating, church decoration, etc., but he said he felt sure we were coming nearer to God than we did sixty years ago. He pointed to the row of ministers belonging to the different denominations, and said in substance: "You could not get five churches to unite fifty years years ago as they unite and are united now." And as I heard the five different pastors speak to a congregation made up of people from every denomination — yes, and many of them of *no* denomination — I felt that what he said was true. There has been an advance in the last twenty years. As each one of these five pastors spoke, if he spoke what he really believed and felt (and I think he did), no one of them thought of saying none would be saved except those belonging to his own creed. The thought came to my mind that was beautifully expressed by our own pastor in a recent sermon. I think he said the words were first spoken by Augustine, one of the Fathers of the Christian Church: "In essentials, unity; in non-essentials, liberty; in all things, charity." At the time of my conversion the sight of united bodies of Christian people was inspiring; and whenever I see a movement in this direction it renews and revives that very feeling and inspiration again. In business matters we are learning charity, and, more than all, we are learning to forget injuries. I am sometimes astonished to see people who have had a fierce lawsuit commence friendly relations as soon as it was over; and I am surprised to see the man who has been wronged and cheated turn around and do a kind act to the neighbor who cheated him; and when business matters have unexpectedly brought men together who have had serious difficulty, I have been gratified again and again to see them do each other a good turn, just as if their former unpleasantness had never happened. Notwithstanding serious troubles lie before us as a nation, I do feel that we are gaining ground spiritually, and sometimes people seem to be catching the spirit of the beatitudes without even knowing or realizing that they are unconsciously showing forth a Christian spirit. I once heard a merchant say, who was very patient, and seemed almost Christianlike, "Oh! we never quarrel with people, especially with customers. *That* would not be 'business.'"

I want to call attention to one point made by the good brother who raised the money. It was something like this: "Now, look here, my good people. You know who have subscribed. You have heard their names mentioned here. You will remember pretty nearly just how much each one has given. Tomorrow morning when you go out on the streets you watch their faces. Every one who has helped in this work will wear a good broad smile. The people who have not given any thing will look sour and cross. Probably they will be cross at the weather and at almost everybody. Can you afford to let such an enterprise go forward in your town, and not lend a helping hand?" As he spoke of the enterprise he waved his hand as if directing attention to the electric lights aloft, the beautiful mottoes on the wall, the new, easy, and comfortable seats, steam-radiators, not forgetting the ample ventilation and all the other things. Dear reader, are you wearing a broad and happy smile about your daily tasks? If not, is it not possible you have forgotten or neglected to look after the churches in your vicinity, and to lend a helping hand? Have you been present on such occasions as I have mentioned? and have you been one of those who were "gathered together" as in the language of our text?

PROMPTNESS AND RELIABILITY IN BUSINESS.

Their Bearing on the Matter of Work and Wages.

BY A. I. ROOT.

Just now there is not so much being said about competent people being out of work; nor is there so much discussion and contention regarding the wages people shall receive; but I feel once more impressed to take up the subject, and point out at least one reason why so many people do not have a permanent situation, and why the pay is small when they do get a job, and it is in this matter of reliability. We have a notice up almost constantly at the time-desk, which reads something as follows:

"Those who leave their work without giving notice (or getting permission) must not complain if they lose their places without notice."

Notwithstanding this, we are annoyed constantly, year in and year out, by certain persons who will leave their job at any time they feel like it, without saying a word to the foreman or anybody else, and come back the next day, or later, and expect to go to work without any notice or apology for their absence. As an employer of many hands, perhaps I look at this matter from a selfish point of view; but I think there is justice in my position; and, even though there be something to be said on the other side, I feel sure you must all admit that I am at least in some respects right. When you hire a man to do some work for you, it is a contract like all other contracts; and it is one of the first business axioms that any man should either keep his business contract or promise, or get a release from said business contract or promise. When a man is hired regularly at so much a day or hour, he agrees, indirectly if not directly, to be on hand at regular hours; and to be consistent and reliable he should be at his post or else get permission from his employer or foreman to be absent. If he absents himself without saying any thing, or comes an hour or two hours late, he causes trouble and expense in a way one will not readily understand until he has had charge of men, and had charge of work that is important. With the irregular man, the foreman can only keep watching and waiting, thinking he will be along soon. Finally, when it begins to look as if he were not coming, somebody is selected to fill his place. To do this, annoying changes have to be made. Two or three men have to be changed about, frequently, to get one who understands the particular work of the absent man. After these changes are made, and every thing is running fairly well, the absent man turns up. Then they have to go and change back again. Sometimes a new man has been employed temporarily, and this man must either be sent home or kept at a loss. I have known goods to be returned because of defective workmanship; and after an expensive investigation we find the trouble came in right where one man stayed away and somebody else was obliged to take up his job where he left off. The one who had started his job had careful instruction, and was watched until he did it all right. When the change was made, the one who gave these careful instructions knew nothing about the change, and so did not have an opportunity of making plain to the new man what was wanted.

Perhaps our friends do not all realize that it is only *certain ones* who are missing when they are wanted most. There are those in our employ who are sick every little while, and give that as an excuse for going away without notice. There are others who always miss a train by accident. I suppose it never occurs to them that it looks singular that *they* should always be having such accidents when others around them do not.

Last Saturday (Nov. 6) was a beautiful sunshiny day, after having had almost a week of rain. Two men were set unloading a car of lumber. They could have finished it easily by night, and their foreman supposed they would do so of course. Late on Saturday afternoon it was discovered that neither one of them had been at work since noon. As all the other hands were busy, the lumber was left, just as they dropped it (when the whistle blew at noon), all day Sunday. On Sunday it rained. Now, neither of these men asked permission to be away, nor did they inform their foreman that they would have to be away. They simply dropped their work, leaving the lumber all scattered about so it was not in condition to be protected from the rain, without saying a word to anybody. One of these men had persisted in doing this thing so repeatedly we had tried to get rid of him; but because of a poor overworked and sickly wife we had taken him back several times, with his promise to give notice, hereafter, when he was to be away.* The other man was one whose wages had been recently advanced, and was a sort of second foreman, so he could, during the noon time, have easily arranged with somebody else to finish unloading the car.

One man once gave as a reason for not speaking to his foreman, that, whenever he had asked to be away, the foreman was almost sure to refuse to let him go, and that was his reason for going away *without* notice. This man was running a machine. If his machine should stop, several others would be thrown out. When I spoke to the foreman about it he said he could usually make arrangements to let a man go when necessary. Sometimes, when there is to be a car loaded, and the force is kept up late at night to do it, it is very inconvenient to have a machine stopped. A great part of the year, however, we have a surplus of help, and a great many times it is really a convenience to us to have a man ask to be away. In the fall of the year we often give vacations for two weeks or more. If the man who wants to be away will talk over the matter with his foreman or employer, very often arrangements can be made to their mutual advantage to have him away.

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* I have since learned that this man left his work to attend a sale in the neighborhood. Which is of more importance—attending to your legitimate business and holding your job, or going to a sale without leave of absence?

Now, there is another point I wish to touch on where you may think I am selfish, and looking on only one side of the matter. There are two ways of getting away from a job. One is to tell the boss that you have *got* to be away for the afternoon, and then go off and leave him before he has had a chance to explain to you the situation of the work. Another is to say, "Mr. A, I should like to get off this afternoon, if you can manage to get along without me." This latter way is getting permission, while the other way is simply giving notice that you are *not* going to work. Some people think it is stooping to ask *permission* of an employer to be away. Now, I will tell you how I look at this. If the President of the United States should contract for some work,* and then something should turn up that he did not want it, I should expect him to get *permission* of *me* to cancel his order; and that is the custom in all other business transactions, except that of employing labor. When a man wants to be released from a contract he *asks* to be released.

On my wheelrides I have frequently called on bee-keepers. They are almost always reliable men, and men of property; yet when they change their plans of work to give me a day or half a day it has pleased me to see them go around and get permission to put off work they had planned. When I visited Mr. Hugh Vankirk, and he wanted to go with me over to the oil-wells he put a lot of tools into his buggy. Then he drove out of his way to where he was to do a job of masonwork out in the country; and he asked for permission to put off building that chimney, or something of that sort, until the next day, explaining the circumstances. Now, I suppose the good housewife had got her carpets all up, and every thing arranged for the new chimney; but in a pleasant and neighborly way she said, "Oh, yes! go ahead; we can get along one day more, any way." She may not have used those very words, but it was something like it. Suppose he had started off and left them and the house all torn up, just because it was a little trouble, and made our drive a longer one, to go around and get a release. Do you see the point? What is for your employer's interest is for *your* interest. Almost everybody nowadays can, if he tries, not only secure a permanent job, but most of us can look forward to an advance in wages; but, my dear friend, you can not hope for any advance when you annoy and perplex your employer in the way I have indicated. Why, high-priced men in every calling expect to give notice when sickness or accident prevents them from being at their accustomed places. Our engineer once sent his wife up before daylight, in the winter time, to let us know that he could not be on hand to fire up. It really seemed to me almost too bad when I saw the woman coming so early, but it was really the only thing he could do consistently.

One thing more right here before closing:

I have been greatly annoyed because the boys who have been with me all through the forenoon would leave word with somebody else, without saying they wanted to be away, and then "somebody else" would forget to say any thing about it. Sometimes I say, "John, why didn't you tell *me*, instead of telling somebody else? I was right with you just before dinner." John hangs his head, and does not say a word. Sometimes I hear that a certain man had told his companions that, if he did not "feel better" after dinner, he did not think he would work. Now, when his boss or employer passed him several times during the day, he did not say any thing to him about it. He simply mentioned it to somebody who was working with him, and I do not often find out about this until I have spent considerable time in asking if *anybody* knew why this man was not in his place. Do you say it is too much bother or trouble? Then, my friends, you must work for lower wages, perhaps all your life, or you must be out of a job every little while. When we are discussing as to which ones to keep through the winter, the man who is not to be depended on gets left out. Even if he may have unusual skill, if he annoys his employer in the way I have mentioned his skill counts for little or nothing. I have known of a man who had the key to the warehouse in his pocket to stay away without notice, and when we would send a boy after him he could not be found, and we had to break the lock and put on a new one.

If, owing to ill health or some other circumstance, you want a place where you can go and come without notice or warning — why, make a bargain that way, and have it understood, and work for low wages accordingly.

Now, if in this little talk I have helped any man, woman, or child to get a permanent situation or better pay, I shall be glad; and I know that every one who hires help will say amen to the position I take. Reliability and promptness help everybody and every thing. If order is heaven's first law, I think that reliability and promptness must have been the next one.

THE SCIENTIFIC APPLICATIONS OF ELECTRICITY TO THE INDUSTRIES OF THE DAY.

The Place it will Probably Take in our Homes.

BY A. I. ROOT.

A few days ago a good friend wrote to me, lamenting that I had no faith in electricity as a curative agent. I hastened to correct his mistake. What I have said in regard to Electropoise, Oxydonor, and Electrikure, has had no bearing on electricity at all, because there is no electricity about them — never was, and the men who manipulate them and sell them to the suffering sick well know that not a particle of electricity can be detected about them by the most scientific and delicate instruments. I know real electricity has been used for the cure of diseases. In fact, Ernest has used it quite successfully recently for an acute attack of rheumatism. It banished the pain instantly. I believe, however, it gave only temporary relief, enabling him sometimes to get sleep nights when he might not have done so otherwise. I am sure, however, a great deal of fraud has been practiced, even with genuine instruments, in applying medical elecricity. No intelligent physician of the present day claims that electricity of itself *cures* disease. It oftentimes assists, however, and gives temporary relief, much in the same way that exercise, friction, or manipulation like massage does.

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* We have not as yet had an order from the President of the United States; but we did have one from the government at Washington, and the carload of goods went yesterday. If we were not on hand, and up to the times, we certainly should not thus be honored by the head of our nation.

But for the present I have something else to talk about. Not only have I been watching since boyhood to see electricity used to run cars, but I have been watching anxiously of late years to see a *portable* electric lamp. Like the astronomers of fifty years ago who turned their telescopes where Dr. Gall told them to look, I have been watching for an electric lamp that would give an instantaneous light when you "pressed the button," but which would stop the light and stop the waste of force whenever the button should be released; and I wanted this lamp to be portable. I do not like a lantern, for it is a dangerous thing to have around the barn and stables; and when you want it in a hurry it is not lighted. For years past, when I have wanted to consult the barometer on the porch on a stormy night I have been obliged to light a lantern or carry a lamp (smoking up Mrs. Root's bright clean chimneys), or else light match after match in the endeavor to catch a glimpse of the column of mercury before the match was extinguished by the blast.

Within the last month I have secured such a lamp. It cost only $2.50. The current is produced by four dry batteries. The manufacturers claim these batteries will run 200 hours; and this time may be made up of flash light, one minute at a time, five minutes, ten minutes, or an hour. You may be a whole year in using up the 200 hours if you choose. When your batteries are exhausted, you can get four new ones for 72 cts.; so you see the cost is only about a third of a cent an hour. Where you use your lamp for flashing a light on the dial of a clock when you wake up in the night, and for such purposes, it would last almost indefinitely. I have used it for riding my wheel, and I can easily keep on the walk, or keep out of bad places in the road, the darkest night you ever saw, by the aid of this little electric lamp. The only objection to it is the small amount of light it gives. I understand there are other ones in the market that give a stronger light, but they run for only about twelve hours — that is, after you have pressed the button a sufficient number of times so it all adds up twelve hours, your batteries will have to be replenished; and with this stronger light the expense may be half a cent an hour or more. Such a lamp can be turned upside down, or any way you choose. You can push it down into a sewer, or use it for lighting up any place where you can not readily get a lantern. In fact, it will light up an overcoat pocket, a rat-hole, or any other place where you want a strong light to penetrate.

I have before told you that, with the proper appliances, the same wire* that runs an electric light will also cook food, heat water, apply heat to any part of the body of an invalid, or for a thousand other purposes where heat or any degree of warmth is wanted. This is comparatively well known. Just now I am in receipt of a catalog stating how, by means of an electric wire, cold may be produced or applied in a similar way. Of course, what I mean by producing cold is abstracting heat. This electric wire runs a motor, and the motor causes ammoniacal gas to circulate through pipes large or small as may be desired, so that you can heat one corner of your room and cool off the other by the simple force of an electric current. I made inquiries in regard to the apparatus, with the view of keeping my potato-cellar so the potatoes would not sprout, even in the month of June. I can keep our cellar cold very well until along in March, without any apparatus. After that, with the aid of the cold-machine, during occasional warm spells I can keep the potatoes just right to plant, or for table use. Of course, this has already been done by the use of ice. But ice is expensive, bulky, and is apt to be sloppy. Our potato-cellar is already lighted by turning the button of an electric lamp when we want to go into it. Now, if I can, by turning another button, cool it off when it gets too warm, I shall be quite happy — or at least I think I shall. The electrical refrigerating-apparatus is going to be superior to an ice-chest because you can have it close up to the dining-room and you can have your heat and cold so near each other as to save many steps. When the good wife can, by suitable arrangements, avoid the necessity of keeping a hired girl, it is quite a saving in money, and sometimes a saving in nerves. Don't understand that I am tilting at the average help in the home; but I have been thinking that, if electricity should begin to encroach on the domain of the hired girl, it might have a wholesome effect — we will say on the home, for instance.†

Once more, in a recent number of the *Scientific American* I saw a picture of a dynamo and water-motor combined. The price is only $8.00. The said dynamo has capacity enough to run a single lamp. I wrote the manufacturers, saying that, whether they knew it or not, they were coming pretty near solving the problem of making the wind or wintry blast, as it passes over our homes, furnish the light for the home circle. On figuring it up, however, I found that, at the present stage of

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*When I use the expression "wire," I mean the usual combination of *two* wires used for the ordinary electric lamp. The Electropoise and Oxydonor people are the only ones I ever heard of who propose to send *any* thing through a *single* wire.

†Since the above was written I have received prices on the refrigerating-apparatus mentioned. At present the smallest size costs $300, which, for the time being at least, will keep it out of our potato cellar.

progress in the matter, it will take from seven to eight barrels of water an hour, under 40 lbs. of pressure, to run a ten-candle-power electric lamp. Let me explain. An eight or ten foot windmill would, with a moderate well, pump water enough every day to run a water-motor three or four hours in the evening. This water-motor would carry a lamp that would light up any ordinary room so anybody could read the finest print with ease in the remotest corner. After locating the apparatus it would cost practically nothing. After your lamp has shed its light for about a thousand hours, counting only the hours while it is burning, you would have to get a new one, which would cost you 15 or 20 cts. The water, after it has moved the motor, could be used for watering animals, filling a pond so as to be used afterward for irrigation, or any purpose you choose. The principal expense of this home electric light would be a tub or tank to hold the water in an elevated position. If you have a windmill on a hill higher up than your dwelling, you could very easily get the water-pressure; and your tank would have to be large enough to hold, say, something like 100 barrels, so as to have your lights run all the same if the wind should not blow for two or three days. Storing so much water is rather expensive, I know; but at the present stage of science a storage battery would be still more expensive. Where you have a running spring up on a side hill several feet higher than your home, an electric light could be put in at no expense except the $8.00 motor and dynamo, and piping enough to bring the water down to the motor. Natural water-powers will very soon be all or very nearly all utilized in the production of electricity; and now I am waiting and watching to see the power of the wind, that is everywhere over and about us all, utilized in a similar way. It may not come in my time, but thousands who read these pages will surely see it — at least that is the opinion of your friend and well-wisher, Uncle Amos.

HIGH PRESSURE GARDENING

STRAWBERRIES.

The bulletin on strawberries, for September, from the Ohio Experiment Station, is one of the most valuable — at least to me — that has ever been sent out. Considerable is told us about summer planting. During the past season, plants set out very early in the spring were sending out runners in June; and in July very nice plants were rooted sufficiently to take up. These were planted out (at the station) in August, six inches apart, because such an early growth meant more plants than ought to stand on so limited an area. The new bed with plants six inches apart, set out in July or the fore part of August, would make a matted row with plants at exact distances. Of course, we had plenty of rain last spring; and to keep off the sun our experiment station shaded the plants with green bushes. By the time the green leaves on the bushes were dried up the strawberries could hold their own. In this way the strawberries can take the place of early peas, early potatoes, and other early vegetables. The bulletin says, in regard to the use of water:

> Instances are on record where the increase in the strawberry crop has repaid the entire cost of the pipes, labor, and water, in a single season, the water being furnished by the city water works.

But further on we read in regard to irrigation:

> It has been found that the loss of moisture from unplowed ground may be in excess of that from cultivated soil to an amount equal to an inch and three-fourths of rainfall in one week. A man with a team and sprinkling-cart could not replace the water on an acre of land as fast as it escapes by evaporation from the soil, when it goes off at that rate, if he had to haul the water one-fourth of a mile.

In regard to the importance of stirring the soil after every light shower, see the following:

> The importance of stirring the soil soon after a shower is generally known; but in practice, cultivation after slight showers is often neglected. This is because the soil does not become compacted, and no crust forms after slight showers, hence the necessity of stirring the soil at once is not apparent.

And again:

> As the two are commonly used, a cultivator is a better machine for irrigating than a sprinkling-cart.

In regard to fertilizers we read:

> Experiments here with chemicals on strawberries have, thus far, been negative.

Their report on varieties agrees very nearly with my own. Brandywine is given a very high place. They say in regard to it:

> The bulk of the crop ripens very late. It excels the Gandy in productiveness and color.

They also indorse my high recommendation of Carrie, and say as I have said:

> Every fruit-grower will appreciate an improved Haverland

In regard to the Lovett, we read:

> One would hardly be justified in discarding the Lovett, where a reliable pollen-bearing variety is wanted.

And I was also glad to see them giving the Margaret the high recommendation I expected them to accord it. They say:

> Under high cultivation the Margaret has given surprising results. For fancy berries it is unsurpassed.

They object to the Marshall unless it is for home market, because it is rather soft. The Wm. Belt also receives many favorable words. They close with the following:

> It is too good a variety to be hastily discarded. It is particularly valuable for the home garden or near market.

The most promising new varieties they sum up as follows:

> Aroma, Anna Kennedy, Beauty, Copernicus, Clyde, Carrie, Enormous, Glen Mary, Hall's Favorite; unnamed seedling from A. Luther; unnamed seedling from H. Orewiler; Portage, Ruby, Rio, Staples; unnamed seedling No. 1 from S. H. & A. J. See; Tennessee Prolific.

And here is a list that can *not* be recommended, in the opinion of the experiment station:

> Bouncer, Columbian, Equinox, Eleanor, Epping, Gardner, Holland, Mary, Princeton Chief, Satisfaction, Sunrise, Timbrell, Weston.

The old standard varieties that have gotten a permanent place with almost all strawberry-growers in the land, and that can be recommended for general cultivation, are the six following:

Bubach, Brandywine, Greenville, Haverland, Lovett, Warfield.

I felt somewhat gratified to know that at least four of the above six have been in our condensed list of varieties for years past. Ohio people can get a copy of this bulletin, No. 82, by writing to the Experiment Station, Wooster, O. Those who live outside of this State can find out by inquiry on what terms this very valuable bulletin will be forwarded.

Humbugs and Swindles.

"REPORT ON A RECENTLY PATENTED PROCESS OF BUTTER-MAKING."

The above heading is the title of a circular from the Department of Agriculture at Washington. There have been so many frauds and swindles sold to ignorant and usually poor people, for a process of making a greater amount of butter than is usually made from the same amount of milk, the Department has issued a circular warning the people against it. The closing words of this circular ought to be sufficient to warn at least everybody who sees this from investing in similar frauds and swindles :

> The fact that more or less milk can be incorporated in butter, without the addition of any compound, has been known for several years, and was stated in Farmers' Bulletin No. 12, Nostrums for Increasing the Yield of Butter, which was issued from this Department in 1893.

From the above extract you will see that this thing has been running, and people have been swindled all over our land, since 1893. It is a burning shame that the thing should still go on.

CIGARETTES.

I clip the following from a newspaper :

> A fire started by a lighted cigarette destroyed a large building in St. Louis, causing a loss of about $1,000,000.

Now, please do not imagine that I lay the blame of this especially to the cigarette business. The moral that it points out, it seems to me, is something like this : There ought to be some closer restrictions in regard to this matter of going about with a pipe, cigar, or cigarette, or any thing else that contains fire, in such a careless way as this.

CONVENTION NOTICE.

The Ontario Bee-keepers' Association will hold their annual meeting in the city of Hamilton, on the 7th, 8th, and 9th of December next. A cordial invitation is extended to all those interested in bee culture to attend. W. COUSE, Sec'y.
Streetsville, Ont., Can., Nov. 17.

The Minnesota Bee-keepers' Association will hold its annual meeting in Minneapolis, at the new court-house, on Wednesday and Thursday, Dec. 8 and 9. The Horticultural Society convenes on the 7th, and continues for four days. DR. E. R. JAQUES, Sec'y.
Crystal, Minn., Nov. 13.

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ELIAS FOX, Hillsboro, Wis.

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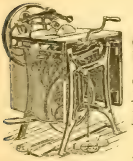

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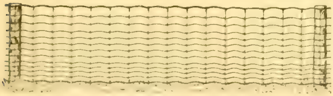

The Spaniards Say

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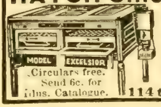

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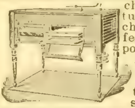

THE SUCCESSFUL INCUBATOR

is the standard machine for hatching strong, healthy chicks. Self-regulating, patent turning trays, drying room for chicks, non-explosive lamp—just a few of its good points. Sold under positive guarantee to work perfectly. Beautifully made and durable. Our 128 page catalogue describes them fully; tells many things about poultry raising you should know. Mailed for 6 cts.

DES MOINES INC. CO. Box 503 **DES MOINES, IA.**

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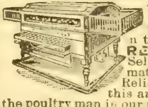

NEVER BEATEN

in all the many shows in which it has participated, there must be something in the superiority claims of the **RELIABLE INCUBATOR** Self regulating, entirely automatic, you put in the eggs, the Reliable does the rest. All about this and many things of value to the poultry man in our new book. Send 10 cts. for it.

RELIABLE INCUBATOR & BROODER CO., QUINCY, ILLS

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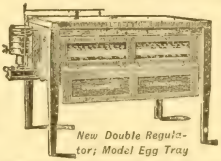
An Honest Machine, Honestly Built,

Sold Under a Positive Guarantee.


New Double Regulator; Model Egg Tray

"NEW AMERICAN."

Want Our Catalogue?

It's a pretty book of 68 pages, finely illustrated; worth dollars to every poultryman. A 2c stamp gets it.

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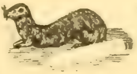


500 Young Ferrets now ready to ship.

Send for price list of ferrets and pure Italian bees, free, to

N. A. KNAPP, Rochester, Ohio.

SPECIAL NOTICES FROM BUSINESS MANAGER

BEESWAX.

We will pay 25 cts. cash, or 27 in trade, for average wax delivered here. We expect to need 50 to 60 tons of wax the coming season, and can therefore use all the pure beeswax you can send us. For choice clean bright yellow we usually pay an extra cent or two.

ALL GRADES OF COMB HONEY.

We have had a brisk demand for comb honey, and for a time we could hardly get it in fast enough to fill orders. We now have a good supply of all grades at the following prices: Fancy white, 13; A No. 1 white, 12c; No. 2 white, 11; fancy amber, 12; A No. 1 amber, 11; fancy buckwheat, 10; A No. 1 buckwheat, 9. Above prices are for lots of 100 lbs. or more. In 500 lbs. in original crates, as received from producers, 1 ct. per lb. less. The amber grades are especially fine.

CLOVER EXTRACTED HONEY WANTED.

With the very abundant crop of clover the past season we ought to be able to get plenty of good clover extracted honey. We are, however, having difficulty in securing enough to supply the demand. We have decided to raise our selling price half a cent a pound, so we shall be able to pay a little more, and may be we can find it easier. Our price will be 7 cts. a pound in 60-lb. cans, 2 in a case. Those who have honey to dispose of will confer a favor by sending us a small sample, telling how it is put up, and what they ask for it.

ANOTHER CAR OF CALIFORNIA HONEY.

We have already sold two carloads of California honey, and are beginning on a third car just received a few days ago. We sold one whole car to one customer. When we were closing out the first car the orders came so thick and fast that it was all gone weeks before we expected, so that we were without any to fill orders with for two or three weeks. We are pleased to say that we can now ship promptly. While the freight on this last car was a little more than on the previous one we propose selling at the same prices: 60-lb. cans, 2 in a case, of water-white, at 6½ cts. per lb.; light amber at 6 cts. In 5-case lots or more, ½ ct. per lb. less. We are developing a large trade among grocers on No. 25 jars filled with California honey, and labeled, shipped 2 doz. in a case, at $3.50 per case; 6 cases, $20.00. We can also supply it in square jars, 1-lb., 1 doz. in a case, at $1.80; ½-lb., 2 doz. in a case, at $2.25; 5-oz., 2 doz. in a case, at $1.70. You have little idea what may be done to increase the consumption of honey till you go to work in a systematic way to educate the general public in various ways to overcome prejudice and create a demand. I do not believe that there is any danger of overproduction of honey if proper measures are taken to increase its consumption.

TINKER PERFORATED ZINC.

Among the many makers of bee-keepers' supplies there has been none who turned out nicer or more accurate work than Dr. G. L. Tinker, of New Philadelphia, Ohio. His work was all done by himself, and, consequently, was limited in amount, and high in price. The doctor, for various reasons, has discontinued the manufacture of supplies; and his successors, not having his skill, have not made a success of the business. One of the doctor's achievements was an automatic machine for perforating zinc, the product of which has had the reputation, wherever known, of being the most perfect for bee-keepers' use of any ever made. The machine is a wonderful piece of mechanism. After setting it going on a sheet of any size up to 24x44 inches, with all the attachments properly set, it will work away, making one hole at a time, automatically reversing itself back and forth over the sheet till the last hole is made, when it throws itself out of gear and waits your leisure to change the sheets and start it going again. In our zinc-perforating machine there are seventy punches and dies, and it is practically impossible to have all the holes exactly the same size, while on the Tinker machine every hole is made by the same die and punch, and therefore all the holes must be of the same size. We have come into possession of the Tinker machine, and expect, for the coming season, to supply this as well as the old-style zinc. The price of the Tinker zinc will be somewhat higher than the old style, as follows:

Tinker zinc strips, ¾ x 18 to 20 inches long, 2 rows of holes, $1.20 per 100. Tinker zinc sheets, 24x38 or 24x40, 60c per sheet. Tinker zinc honey-boards, 12x19⅛ to 20, at $1.50 for 10. For each additional inch in width add 1¼c. For each additional inch in length add 1c. For each lot of less than 25 pieces, add 25 cents for setting machine; 25 or over, no extra charge. These prices are about 20 per cent less than what Dr. Tinker charged, and about 50 per cent above the price of the old-style zinc. The Tinker zinc is as near perfection as is possible to make it—no burr edges or variation in size of perforations. We can also furnish the Tinker zinc in drone size—that is, with perforations which will exclude drones but allow the queens to pass.

Special Notices by A. I. Root.

Blackwalnuts, gathered in the fall of 1896, but in good condition, only 10 cts. a peck.

THAT NEW POTATO IN THE GREENHOUSE.

We cut it so as to make 42 eyes. These are planted in pots of jadoo fiber. Of course, they are rather slow in starting, just after the potato was dug from the ground. But about a dozen of the eyes have already made a good start. Some of them are showing green leaves. We expect to grow them all winter in the jadoo fiber, watered with the jadoo liquid.

WHO IS DR. SALISBURY?

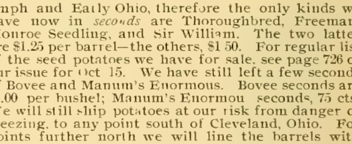
There have been so many inquiries in regard to the lean-meat diet that we have provided ourselves with a little pamphlet headed as above, which we shall be pleased to mail any one free of charge. It gives a pretty full explanation of the Salisbury treatment; and with the directions given, almost any one can test the matter for himself. I expect it to do real missionary work among those who are suffering from impaired digestion.

SEED POTATOES.

Since our last we have sold out of seconds Bliss Triumph and Early Ohio, therefore the only kinds we have now in *seconds* are Thoroughbred, Freeman, Monroe Seedling, and Sir William. The two latter are $1.25 per barrel—the others, $1 50. For regular list of the seed potatoes we have for sale, see page 726 of our issue for Oct 15. We have still left a few seconds of Bovee and Manum's Enormous. Bovee seconds are $1.00 per bushel; Manum's Enormous seconds, 75 cts. We will still ship potatoes at our risk from danger of freezing, to any point south of Cleveland, Ohio. For points further north we will line the barrels with heavy paper, and do our best to get them through safely; but we should not like to be entirely responsible.

SOMETHING NEW IN THE WAY OF PLIERS.

When I was a very small boy I began to use pliers. I wanted them for handling wire, pieces of tin, for taking apart clocks, and for repairing other machinery. When I learned the jeweler's trade a pair of pliers was almost constantly in my fingers or in my pocket. I soon learned to value good pliers, and I have carefully watched the improvements in their manufacture. While passing through the store a few minutes ago one of the clerks showed me a pair of pliers costing only 10 cts., that eclipses any thing yet heard of in the line of strength and efficiency, in lightness, and for a very little money. Below is a picture of one of them, but it does not do the beautiful little tool justice.



We have three sizes of them, costing 10, 15, and 20 cts. respectively. They are made of sheet steel stamped out with appropriate machinery, and yet they are stronger, neater, and hold better than the old fashioned kind that cost two or three times as much. They are so light that we can send them by mail for only 3, 4, and 5 cts respectively The dimensions are, smallest, 4 inches; medium, 5 inches; largest, 6 inches. If I had been the inventor of this kind of pliers I would swing my hat high in the air and shout "Hurrah!" like a schoolboy.

VEGETABLE-GREENHOUSES IN DECEMBER; WHAT SHALL WE PLANT IN OUR BEDS?

Well, judging from past experience we are going to fill our greenhouses mostly with lettuce, as it seems to be most in demand in our market as a winter vegetable. Water-cress may be grown to a limited extent. It is very easy to grow, is not affected by any disease, and will stand quite a little freezing without injury; so if your greenhouse is not very warm it will be just right for water-cress. If you have a market for radishes they will go all right along with lettuce and water-cress. Be sure you have lettuce-*plants* enough—too many will not do any harm. Where your space is limited, better transplant them at twice. When little plants begin to show the second leaf, plant them out with a spacing-board 2½ or 3 inches apart; the next time, about 7 inches from center to center. If you have a market for green onions they will go nicely with the above. A little parsley, which is also very hardy, will be very nice to mix in with other winter salads. And do not forget spinach. We have for several seasons past sold it at the same price as lettuce, and it is ever so much easier to grow. For seeds of any of the above, see our fall seed-catalog, mailed free on application.

NOT FOR SALE. Why do the largest bee-keepers in the world use Bingham Smokers and Uncapping-knives 19 years? Such men know a best thing when they use it. While we have the only exclusively smoker-factory in America, we don't advertise it. It is not for sale. But we do, and have 19 years, made exclusively Bingham smokers and honey-knives. If you get a high-priced Bingham smoker and honey-knife you will have the best as long as you take good care of them. They never go out.

T. F. BINGHAM, Farwell, Mich.

IF YOU have good white-clover honey to sell correspond with

HAYES, BLAIR & CO.,
120 Broadway, Cleveland Ohio.

BARRED PLYMOUTH ROCKS, Hawkins' noted strains. A few choice birds for sale cheap, $1.00 each. FRED H. BURDETT, Clifton, N. Y.

I. J. STRINGHAM,
105 PARK PLACE,
NEW YORK,

keeps in stock a full line of popular

APIARIAN SUPPLIES,

which are first-quality, both in material and workmanship.

Celebrated Wisconsin Basswood Sections, Dadants' Foundation.

HONEY-JARS, 1-lb., square, with corks, $4.50 a gross; discount on quantity.

Catalog free, giving discount for early orders.

Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

"WATCH POUDER'S AD"

SEE THAT WINK?
BEE SUPPLIES.

Root's Goods at Root's Prices.

Pouder's Honey-Jars and every thing used by bee-keepers. Low freight rates; prompt service. Catalog free.

WALTER S. POUDER,
162 Mass Ave., Indianapolis, Ind.

CALIFORNIA. Mountain bee ranch for sale. Good location; telephone connection with three railroad stations.
D. O. BAILIFF, Banning Cal.

BEAGLE HOUNDS. Fine stock and fair prices. **"Beagles." Box 20, So. Cabot, Vt.**

BEE-SUPPLIES.

We have the best-equipped factory in the West. Capacity—one carload a day; and carry the largest stock and greatest variety of every thing needed in the apiary, assuring **best** goods at the **lowest** prices, and prompt shipment.

Illustrated Catalog, 72 Pages, Free.

We also manufacture Tanks of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free.

Address **E. KRETCHMER, RED OAK, IOWA.**

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BETTER THAN KLONDIKE GOLD, $3.60 FOR $1.

N. Y. Weekly Tribune, greatest 20-page newspaper in U. S.	$1.00
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P. K. illustrator No. 4, judging fowls, description of breeds, mating, point, etc	.25
For only $1 we will send these 4 papers one year and 4 books, postpaid, grand total	$3.60

Sample P. K. with other offers free. **POULTRY KEEPER CO., Box 500, Parkesburg, Pa.**

When writing to advertisers please mention GLEANINGS.

Gleanings in Bee Culture AND American Agriculturist.

Weekly.

BOTH ONE YEAR ONLY $1.25.

By special arrangement with the publishers, we are enabled to offer the American Agriculturist in combination with GLEANINGS IN BEE CULTURE at the unparalleled low rate of $1.25 for both papers one year. The American Agriculturist is published in five editions. The N. E. Homestead, the Eastern, Middle, and Southern editions of American Agriculturist, and the Orange Judd Farmer. Each contains matter relating to its own locality, as well as the latest and most accurate market reports for the country in general. It has departments relating to all branches of farming, articles written by the most practical and successful farmers, supplemented with illustrations by able artists. Short stories, fashions, fancy work, cooking, young folks' page, etc., combine to make a magazine of as much value as most of the special family papers.

A sample copy will be mailed FREE by addressing AMERICAN AGRICULTURIST, Columbus, O., or New York, N. Y.

TAKEN separately these two papers cost $2.00, consequently every subscriber under this offer will get

$2.00 IN VALUE FOR $1.25.

Premium Books. For 10 cents extra, as postage, you can have your choice of any of the following standard books FREE: "Profits in Poultry," "Farm Appliances," or "Farmer's Almanac" (ready December 15). Send your subscriptions direct to

THE A. I. ROOT CO., Medina, Ohio.

Two Papers for the Price of One.

The **Farm Journal**, of Philadelphia, a monthly agricultural journal of 16 pages, sent **One Year Free** for one subscription to **Gleanings**, with $1.00, paid in advance, either new or renewal. In the case of a renewal, all arrears, if any, must be paid in addition to one year in advance.

The Farm Journal is now in its 20th volume, and takes the lead among all the *low-priced* agricultural journals of this country and of the world. It gives no chromos, puffs no swindles, inserts no humbug advertisements, lets other folks praise it, and makes good to subscribers any loss by advertisers who prove to be swindlers. The editor was born on a farm and reared at the plow-handles, and the contributors are practical men and women.

The regular price of this excellent journal is 50 cents a year, and it is well worth it; but by special contract with the **Farm Journal** we are enabled to make the above very liberal offers.

THE A. I. ROOT CO., Medina, Ohio.

A Bargain!

Only $1.50. We have made arrangements to furnish **THE OHIO FARMER**, of Cleveland, Ohio, and GLEANINGS IN BEE CULTURE, both papers, for only $1.50.

The Ohio Farmer is well known as one of the very best, largest, and among the leading agricultural papers of America. A 20-page, 80-column paper EVERY WEEK in the year; employs THE VERY BEST WRITERS that money can procure; a strong, fearless defender of the agricultural interests of this country, and CLEAN in both reading and advertising columns. IT HELPS MAKE THE FARM PAY.

THE A. I. ROOT CO., Medina, Ohio.

Honey Column.

CITY MARKETS.

NEW YORK.—Comb honey has been selling rather well the last week; fancy goods fairly well cleaned up; No. 1 and fair-grade goods not having a quick sale. We quote our market as follows: Fancy white-clover comb, 11@12; No. 1, white clover, 10@11; amber white clover, 9@10; buckwheat fancy, 8@9; No. 1, 7@8; extracted honey, N. Y. State white clover, 4¾@5¼; buckwheat, 3¾@4¼; Cal. white, 5@5½; light amber, 4¾@5; Southern, 50@52½ per gal.; beeswax, 26@27. Both Southern honey and beeswax are in demand.

FRANCIS H. LEGGETT & CO.,
Dec. 8. Franklin and Varick Sts., New York.

MILWAUKEE.—Since our last report there has been an improved demand for honey; and our sales, especially of extracted, have been good and quite regular from day to day, which shows that it is reaching the mouths of the people. The receipts of honey have been good, and the demand fair. We quote white 1-lb. sections, No. 1, 12@13; No. 2, 10@11; dark, 8@10; extracted white in barrels and kegs, 5½@6; dark, in barrels and kegs, 5@5½; beeswax, 25@27.

A. V. BISHOP & CO.,
Dec. 8. Milwaukee, Wis.

KANSAS CITY.—The stock of comb honey in this market is large; market quiet. We quote fancy white comb, 10½@11; No. 1, 10@10½; amber, 9@10; dark, 8@9; extracted white, 5½@6; amber, 4½@5; beeswax, 20@24.

C. C. CLEMONS & CO.,
Dec. 8. Kansas City, Mo.

MINNEAPOLIS. — Fancy white-clover comb, 11@12; fancy dark, 9@10. Market fairly well supplied with all grades. Car or two of California stock still on hand. Local and country demand for white extracted good. Best white clover selling from 5¾ to 6¼.

S. H. HALL & CO.,
Dec. 8. Minneapolis, Minn.

NEW YORK. — Our market remains quiet. Stocks are plentiful, and with a slow demand. Prices all along the line show a downward tendency. We quote: Fancy white comb, 11@12; fair white, 9@10; buckwheat, 7@7½; extracted California white, 5@5½; Cal. light amber, 4½@4¾; white clover, 5c; buckwheat, 4; beeswax, 26@27. HILDRETH BROS. & SEGELKEN,
Dec. 8. 120-122 W. Broadway, New York.

ST. LOUIS.—There is no change in prices since our last quotations. Honey is moving rather slow; outside trade very light; sales confined to local trade; beeswax firm, and in demand.

WESTCOTT COMMISSION CO.,
Dec. 8. 213 Market St., St. Louis, Mo.

PHILADELPHIA.—The demand is not so brisk as two weeks ago, either for comb or extracted. Beeswax very scarce, and in heavy demand. We quote fancy comb, 13½; No. 1, 12; amber, 10; buckwheat, 8; extracted white, 6; amber, 5; buckwheat, 4. We are producers of honey; do not handle on commission.

WM. A. SELSER,
Dec. 8. 10 Vine St., Philadelphia, Pa.

COLUMBUS.—While nearby farmers who have small apiaries continue to bring in their honey it has but little effect on the local trade, and a steady demand exists. We are selling fancy white at 13; No. 1, 11@12. We are in the market to buy, and if you have honey to sell send a sample and be sure to name price.

THE COLUMBUS COMMISSION & STORAGE CO.,
Dec. 7. 409–413 N. High St., Columbus, O.

CINCINNATI.—The demand for comb honey has been good for the last few weeks, and is fair for extracted honey. We quote the latter at 3½@6, and comb honey at 10@13 for best white. There is a fair demand for beeswax at 20@25 for good to choice yellow.

CHAS. F. MUTH & SON,
Dec. 7. Cincinnati, O.

ALBANY.—Our market is fairly well supplied with comb honey, and stock selling freely at our quotations. Fancy white, 12@13; fair to good, 10@11; buckwheat, 7@8. The stock of extracted is much smaller than usual at this season of the year, and from advices received we are led to believe there is not much in the hands of producers. CHAS. MCCULLOCH & CO.,
Dec. 8. Albany, N. Y.

CHICAGO.—There is no change in our market since last quotations were given. Comb honey is slow; extracted, fair movement; beeswax is selling well, and price firm. R. A. BURNETT & CO.,
Dec. 18. 163 South Water St., Chicago, Ill.

CLEVELAND.—Fancy white, 12@13; No. 1 white, 11@12; fancy amber, 9@10; No. 1 amber, 8@9; fancy dark, 7@8; white extracted, 6½; amber, 5½@6; beeswax, 28.

A. B. WILLIAMS & CO.,
Dec. 8. 80-82 Broadway, Cleveland, Ohio.

DETROIT. — Best white comb honey, 11@12; other grades, 8@10; extracted white, 5@6; other grades, 4@5. Demand fair, and supply good. Beeswax, 25@26.
Dec. 7. M. H. HUNT, Bell Branch, Mich.

SPRINGFIELD.—Good demand. Fancy white clover, 12c; buckwheat, 10c. We should like to correspond with any one having fancy white clover in short-weight packages. PERKINS & HATCH,
Nov. 26. Springfield, Mass.

BUFFALO.—The market price of honey is about as last quoted. Demand is very slow. I think most of the dealers would sell at even a cent off if they could effect larger sales by doing so. W. C. TOWNSEND,
Dec. 3 Buffalo, N. Y.

FOR SALE. — Goldenrod honey, extracted, in cans and barrels, cheap as the cheapest.

J. B. MURRAY, Ada, Ohio.

FOR SALE.—Tons of honey, comb, at 7 to 12c per lb Inclose stamps for samples of extracted at 4 to 6c, in 160-lb. kegs, f. o. b. N. L. STEVENS, Venice, N. Y.

FOR SALE.—Pure honey.—Clover, extracted, 6½ cts per lb.

I. J. STRINGHAM, 105 Park Place, N. Y. City

WANTED.—Several hundred pounds first-class white-clover extracted honey in tin cans, crated, for which I will pay 5c per pound. Send sample.

E. P. ALDRIDGE, Franklin Square, Ohio.

FOR SALE.—Cheap, 25 bbls of honey.

CHAS. DADANT & SON, Hamilton, Ill.

WANTED.—To buy quantity lots of fancy comb and gilt-edged extracted honey. B. WALKER,
Evart, Mich., or 211½ E. Chicago Ave., Chicago.

Wants and Exchange Department.

WANTED.—To exchange 140 colonies of bees, with all fixtures belonging to a first-class apiary, for good horses and mules.

ANTHONY OPP, Helena, Ark.

WANTED.—One saw-mill, feed and shingle mill.

W. S. AMMON, Reading, Pa.

WHAT will you offer for one b-flat cornet and case, also one e-flat alto, good instruments, practically new? Address Box 321, Clifton, New York.

WANTED.—To exchange pair of St. Hubert man-trailing blood-hounds, butcher tools, foundation-mill, and bone-mill, for bee-hives in flat or Italian bees.

ELIAS FOX, Hillsboro, Wis.

WANTED.—To exchange a magic lantern, practically new, cost $45; 80 choice views, cost $40, for extracted honey, shipping-cases, sections, extractor, or incubator. E. E. SLINGERLAND, Troy, Pa.

WANTED. — To exchange pure White Wyandotte cockerels, April hatched. One for same breed; two for W. P. Rocks. E. J. BAIRD, Lock Haven, Pa.

WANTED.—To exchange one Gearhart high-speed knitting-machine for camera or breech-loading shotgun. ARTHUR DARST, Alberta, Ohio.

WANTED.—To buy potatoes in car lots. Who has them? F. W. DEAN, New Milford, Pa.

WANTED.—To exchange an entire plant of machinery for making V-groove sections and bee-hives; veneer machine for berry-boxes, and 10 H. P. engine. All machines are in good condition. What have you to exchange? J. B. MURRAY, Ada, O

WANTED.—To exchange 1 roller organ, 12 metallic rolls (used but little), 1 fox hound (2 years old), for miners' magnetic compass, dip-needle, or offers.

N. A. BLAKE, Beebe Plain, Vt.

Books for Bee-keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, postpaid on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the book-seller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. We very much desire that those who favor us with their patronage shall not be disappointed and therefore we are going to try to prevent it by mentioning all the faults, so far as we can, that the purchaser may know what he is getting. In the following list, books that we approve we have marked with a *; those we especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice that you can judge of the size of the books very well by the amount required for postage on each.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

Postage.] [Price without postage.
8 | Bible, good print, neatly bound 20
10 | Bunyan's Pilgrim's Progress** 50
20 | Illustrated Pilgrim's Progress** 75

This is a large book of 425 pages, and 175 illustrations, and would usually be called a $2.00 book. A splendid book to present to children. Sold in gilt edge for 25 cents more.

6 | First Steps for Little Feet 50

By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound and fully illustrated.

3 | John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon* 10
1 | Gospel Hymns, consolidated, Nos. 1, 2, 3, and 4, words only; cloth, 10c; paper 5
2 | Same, board covers 20
5 | Same, words and music, small type, board cov. 45
10 | Same, words and music, board covers 75
3 | New Testament in pretty flexible covers 05
5 | New Testament, new version, paper covers 10
5 | Robinson Crusoe, paper cover 10
4 | Stepping Heavenward** 18
15 | Story of the Bible** 1 00

A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

| "The Life of Trust," by Geo. Muller** 1 25
5 | Tobacco Manual** 45

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy who reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

15 | A B C of Bee Culture, cloth 1 10
| Advanced Bee Culture, by W. Z. Hutchinson ... 50
3 | Amateur Bee-keeper, by J. W. Rouse 22
14 | Bees and Bee-keeping, by Frank Cheshire, England, Vol. I., § 2 36
21 | Same, Vol. II., § 2 79
| Same, Vols. I. and II., postpaid 5 25
10 | Bees and Honey, by T. G. Newman 90
10 | Cook's New Manual, cloth 1 15
5 | Doolittle on Queen-rearing 95
2 | Dzierzon Theory 10
3 | Foul Brood; Its Natural History and Rational Treatment 22
1 | Honey as Food and Medicine 05
15 | Langstroth Revised, by Chas. Dadant & Son 1 10
15 | Quinby's New Bee-keeping 1 40
| Thirty Years Among the Bees, by H. Alley 50
| Bee-keeping for Profit, by Dr. G. L. Tinker 25
5 | The Honey-bee, by Thos. William Cowan 95
| British Bee-keeper's Guide-book, by Thomas William Cowan, England § 40
3 | Merrybanks and His Neighbor, by A. I. Root... 15
4 | Winter Problem in Bee-keeping, by Pierce 46

MISCELLANEOUS HAND-BOOKS.

5 | An Egg farm, Stoddard** 40
5 | A B C of Carp Culture, by Geo. Finley 25
5 | A B C of Strawberry Culture,** by T. B. Terry.. 35

Probably the leading book of the world on strawberries.

3 | A B C of Potato Culture, Terry** 35

This is T. B. Terry's first and most masterly work. The book has had an enormous sale, and has been reprinted in foreign languages. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. It has 48 pages and 22 illustrations.

| Barn Plans and Out-buildings* 1 50
| Canary birds, paper 50
2 | Celery for Profit, by T. Greiner** 25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

15 | Draining for Profit and Health, Warring 1 35
10 | Fuller's Grape Culturist** 1 15

This is, perhaps, the most systematic, comprehensive, and thorough work on grape culture now in print; in fact, friend Fuller here tells us how, by easy steps, to make any grapevine come into the work, and make a pleasant orderly appearance; and he makes it as attractive as a piece of fiction; and the best part of it is, that you get great crops of beautiful grapes during almost any kind of season. We have tested the system, and know whereof we speak.

8 | Domestic Economy, by I. H. Mayer, M. D.** ... 30

This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is $1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.

10 | Farming for Boys* 1 15

This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

7 | Farm, Gardening, and Seed-growing** 90

This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 166 pages.

12 | Gardening for Pleasure, Henderson* 1 35

While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Proft." This work has 404 pages and 203 illustrations.

12 | Gardening for Profit** 1 35

The latest revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts.

8 | Gardening for Young and Old, Harris** 1 25

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

10 | Greenhouse construction, by Prof, Taft** 1 15

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

15 | How to Make the Garden Pay** 1 35

By T. Greiner. This gives the most explicit and full directions for gardening under glass of any book in the world. Those who are interested in hot-beds, cold-frames, cold-greenhouses, hot-houses, or glass structures of any kind for the growth of plants, can not afford to be without the book.

5 | Garden and Farm Topics, Henderson** 60
| Gray's School and Field Book of Botany 1 80
5 | Gregory on Cabbages, paper* 20
5 | Gregory on Squashes, paper* 20
5 | Gregory on Onions, paper* 20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen........ 05
10 | Household Conveniences........1 40
2 | How to Propagate and Grow Fruit, Green*...... 15
10 | How to Get Well and Keep Well........ 90

An exposition of the Salisbury system of curing disease by the "lean-meat diet."

2 | Injurious Insects, Cook........ 10
10 | Irrigation for the Farm, Garden, and Orchard* 1 10

By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

7 | Market-gardening and Farm Notes........ 75

By Burnett Landreth. The Landreths are the pioneer seedsmen of America; and the book is worth fully as much as we might expect it to be. We think we received hints from it worth the price, before it had been in our hands fifteen minutes. It is exceedingly practical, and tells what has been done and what is being done, more than it discourses on theory.

3 | Maple Sugar and the Sugar-bush**........ 32

By Prof. A. J. Cook. This was written in the spring of 1887 at my request. As the author has, perhaps, one of the finest sugar-camps in the United States, as as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written in Prof. Cook's happy style, combining wholesome moral lessons with the latest and best method of managing to get the finest syrup and maple sugar, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses wants the sugar-book. It has 42 pages and 35 cuts.

4 | Peabody's Webster's Dictionary........ 10

Over 30,000 words and 250 illustrations.

5 | Manures; How to Make and How to Use
Them; in paper covers........ 30
6 | The same in cloth covers........ 65

Covering the whole matter, and discussing every thing to be found on the farm, refuse from factories, mineral fertilizers from mines, etc. It is a complete summing up of the whole matter. It is written by F. W Sempers.

3 | Onions for Profit**........ 40

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and interest that characterizes its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

| Our Farming, by T. B. Terry**........ 1 50

In which he tells "how we have made a run-down farm bring both profit and pleasure."

This is a large book, 6x9 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetition, even if he has read all of Terry's little books. I should call it the brightest and most practical book on farming, before the world at the present day. The price is $2.00 postpaid, but we have made arrangements to furnish it for only $1.50.

We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money's worth after he has read it. If ordered by express or freight with other goods, 10c less.

1 | Poultry for Pleasure and Profit.**........ 10
8 | Practical Floriculture, Henderson.*........1 10
10 | Profits in Poultry.*........ 75
2 | Practical Turkey-raising........ 10

By Fanny Field. This is a 25-cent book which we offer for 10 cts.; postage, 2 cts.

2 | Rats: How to Rid Farms and Buildings of
them, as well as other Pests of like Character.**........ 15
1 | Silk and the Silkworm........ 10
10 | Small-Fruit Culturist, Fuller........1 10
10 | Success in Market-Gardening*........ 90

This is by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drouth threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

10 | Talks on Manures*........1 35

This book, by Joseph Harris, is, perhaps, the most comprehensive one we have on the subject, and the whole matter is considered by an able writer. It contains 366 pages.

7 | Ten Acres Enough........ 75
2 | The Carpenter's Steel Square and its Uses...... 15
10 | The New Agriculture; or, the Waters Led Cap-
tive (a $1.50 book)........ 40
2 | Treatise on the Horse and his Diseases........ 10
5 | Tile Drainage, by W. I. Chamberlain........ 35

Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge. The book embraces every thing connected with the subject, and was written by the author while he was engaged in the work of digging the ditches and laying the tiles HIMSELF, for he has laid literally miles of tile on his own farm in Hudson, Ohio.

3 | Tomato Culture........ 35

In three parts. Part first—by J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general. This little book is interesting because it is one of the first rural books to come from our friends in the South.

3 | Vegetables under Glass, by H. A. Dreer**...... 20

This is by a veteran in the work, full of illustrations from real life, and by all odds the most valuable book we have ever had for such a small price.

3 | Winter Care of Horses and Cattle........ 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in the book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects of the Microscope**.. 47
8 | What to Do and How to be Happy While doing
It, by A. I. Root........ 42

THE A. I. ROOT CO., Medina, O.

KIND WORDS FROM OUR CUSTOMERS.

J. A. Golden's article in Nov. 1st GLEANINGS, entitled "How and why the No-bee-space Sections of Honey bring a Higher Price," is the very best piece yet printed. Circumstances in his case will be a wonderful advantage to the bee-keeping world.

Kingston, N. Y., Nov. 8. AARON SNYDER.

I have not been interested in bee-keeping for several years, but am still a constant reader of GLEANINGS for the sake of what Uncle Amos has to say about gardening and in the Home Papers. They alone are more than worth the price, and are always looked for and read with interest by every member of our family, though the table is piled with unread papers and magazines. C. N. FLANSBURGH.

Leslie, Mich., Nov. 16.

The 3 barrels of seed potatoes (Thoroughbred, Early Ohio, and White Bliss) came in good shape, and I am much pleased. They are the best early potatoes I know of. I thank you very much for sending me 9 big bushels.

Bees have done well this season; but the price of honey is only 8 cts. for the best, and it is very slow sale at that. THOMAS OBERLITNER.

Deshler, O., Nov. 1.

There is one thing that especially pleases me in the above. Our good friend calls the 11 pecks, which we put in for a barrel, "nine big bushels." I suppose the explanation is that so many measure up potatoes, and in measuring they seldom get over or as much as 60 lbs. Our potatoes are all weighed in sending them out, and they usually overrun the measure used for measuring potatoes.

The Review at Reduced Rates.

The **Bee-keepers' Review** is $1.00 a year, but, for the sake of getting it into new hands, and being able to begin the year with a large list, I will, until Jan. 1st, send free to each *new* subscriber, a copy of "Advanced Bee Culture," a 50-cent book of nearly 100 pages, that gives briefly but clearly the best methods of management from the time the bees are put into the cellar in the fall until they are again ready for winter—32 chapters in all. Those who prefer can have, instead of the book, 12 back numbers of the **Review**, the selection to be mine, but no two numbers alike. All who send $1.00 now will receive the last four issues of this year free, and the **Review** will be sent until the end of 1898. If not acquainted with the **Review**, send 10 cents for three late but different issues.

W. Z. HUTCHINSON, Flint, Mich.

$100

Given as **BOUNTIES** to purchasers of the improved Danz. Hives and Sections. See schedule in my bee-book "Facts About Bees." Tells how to produce honey that sells for the most money. Free for 2c in stamps.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

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STRAY STRAWS

FROM DR. C. C. MILLER.

"VIRGINIA" might have the additional information, p 849, that two queens could be wintered in one hive with a thin wood partition between them. A strong colony and a nucleus could thus pass the winter in one hive.

HERR ANDREAS ABEND asserts that a virgin queen may be fertilized, even after beginning to lay drone eggs. Three separate queens, prevented from flying by bad weather, were afterward fertilized, although "buckelbrut" was already in the hive.—*Bienen-Vater.*

A DISCUSSION is on across the sea as to whether bees creep into the cells in winter. So good authority as Rauschenfels and Lehzen insist that they occupy only the spaces between the combs, constantly changing position, and bees found in cells are either dead bees or those that have gone there for food or else because disturbed.

IF IT IS TRUE, as some good authorities insist, that in winter bees don't stay in the cells, then it is easy to believe that Gemmill is right, p. 845, that sealed combs are better than empty ones in the cluster. [I know we have used sealed combs — yes, stuck them right down into the cluster—during cold weather, and have secured good results.—ED.]

A REMARKABLE CASE is given by Dr. Gallup, in *Am. Bee Journal*, which he calls "a case where a queen was compelled to leave for want of room." The colony swarmed and left, leaving a pint of bees, sealed brood the size of the hand, the rest of the combs solid honey—*no queen-cell or unsealed brood.* Has a similar case ever been recorded? [I do not remember any.—ED.]

THE QUESTION is asked in *A. B. J.*, "Is honey more liable to granulate or ferment in leveled-down sections than with foundation?" Of those trying it, two say yes, seven no; one *thinks* yes and one thinks no. Three would have cells ¼ inch deep; one, ⅜; three, ½, and three full depth. [As there is such a diversity of answers it would appear that there is no practical difference.—ED.]

I JUST BELIEVE it will be a good thing to have the Pettit idea in the super carried out with the fence. Still, with perfectly straight separators it isn't any great trick to take the unfinished sections from the outside rows of half a dozen supers, mass them in a single super, and have the bees make a nice job finishing them. [Yes, we expect to have that idea carried out in all our 1898 supers. The fence makes its application very simple.—ED.]

ONE MAN used queen-excluding zinc in half his apiary, and ran all for extracted honey. He weighed the honey of the two lots separately, and claimed favor for the zinc.—*N. E. France, in A. B. J.* [And yet there are some who are foolish enough to assert—and I must think they do so without experience to back them up—that perforated zinc should never be used in the hive. Such kind of talk is about as foolish as to say that foundation is a curse to the bee-keeping world.—ED.]

HERR GRAVENHORST quotes what has been said by GLEANINGS about bees hanging out, and says that for years he has avoided it by timely removal of sealed brood to prevent over-populousness, and by wedging up the hive and giving the fullest ventilation. [Giving the fullest ventilation, I am sure, is all right; but I should question very much the desirability of reducing the working force at a time when it may be most needed a little later on. It is the big colonies that get the honey—at least around Medina.—ED.]

YOU'LL LAUGH AT ME, perhaps, but one of the things I enjoyed most at Buffalo was hearing Doolittle cry "'Tatoes! 'tatoes!" in imitation of the potato-vender. It wasn't the fun of the story, although that was good; it was the clear musical ring of his voice. [Yes, I too enjoyed the intonation Doolittle gave to '*tatoes;* but "you will laugh at me," perhaps, when I tell you I have forgotten both the application and the story. Will friend Doolittle please tell it to the readers of GLEANINGS whenever an opportunity presents?—ED.]

REPLYING to your question p. 838, Mr. Editor, I've a staggering notion that, after a queen stops laying in the fall, and through winter, she sort of abdicates the throne; and while her royalty is laid aside the bees are somewhat indifferent to her; and a strange queen coming into the hive would be much the same to the bees as a strange worker. But remember that the notion doesn't stand square and solid on its feet. [Why call it a "staggering notion," doctor? You have offered a very plausible explanation, and to my eye it stands squarely on its feet.—ED]

E. S. ARWINE, p. 846, seems a little uncertain what may be meant by piping. Small wonder. The term is generally applied loosely to any noise a queen makes. Better follow the German idea as used in Vol. I., *American Bee Journal*. There are two distinct sets of notes used by queens, differing in both pitch and rhythm. In piping, a long shrill note is uttered, followed by several others, each shorter than its predecessor. In quahking, the notes are coarser, more hurried, and more nearly of the same length A queen never pipes in a cell, and never quahks out of a cell. Perhaps the note of a queen that is balled or grabbed by a worker might be called a squeal, being high pitched like piping.

"A COLONY having a laying queen of the current year's rearing can be pretty surely relied upon not to desire to swarm, no matter how strong it may be within any reasonable bounds."—*R. L. Taylor's Buffalo paper.* That is probably true under some circumstances. One year I gave newly reared queens to prevent swarming, and nearly every one swarmed. But I think the rule works all right with Hutchinson. [The exception proves the rule; but I should say, according to my experience, that there may be quite a number of exceptions to this rule. I have almost come to believe that, in the matter of swarming at least, bees are pretty sure, at least at times, to break over all rules.—ED.]

AS NEARLY AS I can find out from others, 50° is the minimum temperature of a cluster of bees — below that, death. With the surrounding temperature at that point, the center of the cluster may be the same. As the surrounding air gets colder, there is more eating, so as to fire up the center sufficiently to keep periphery at 50°. So the colder outside, the warmer in center of cluster; and it may become so warm in the midst of severe winter as to allow brood-rearing, which requires 86° to 95°. [According to this we have the paradox that, the colder the weather the warmer the cluster. But the query arises in my mind, "If this is so, why will not bees winter better during prolonged severe cold weather than during milder winters?" Perhaps the answer is, "Too much food consumption (and it is certainly true in the human family) causes disease."—ED.]

A PLEASANT SIGHT it is to me to see in some of the hives in the cellar, the bees hanging two inches below the bottom-bars. I don't know whether it's because the hive's so full of bees or because the sealed honey comes down so low, but likely the latter. [Yes, it is a very pretty sight. When we wintered in the cellar I used to enjoy looking at the great bunches of healthy bees under the brood-frames; and at the beginning of winter I would say to myself, "How much better in the cellar than outdoors in a bunch pinched together about the size of a snowball!" but when spring came on, and the cellar bottom was literally covered with bees an inch deep in places, then I thought to myself, "Would they have died had they been outdoors?" We now winter on summer stands exclusively. If our winters were more severe and prolonged, I suspect we should get better results in the cellar. But our outdoor bees have averaged the best in wintering, and hence we prefer that method for Medina.—ED.]

N. GENN is much in love with his plan for ventilating hives—no entrance either in hive or bottom-board. In spring he puts a loose lath under each side and one under back end. When warmer he takes out the back lath, leaving ventilation clear through. When more ventilation is needed, put two thicknesses of lath under each side, leaving back and front all open. Simple and good, but some will want the greater ventilation given by four blocks. [This, and a good many other items like it, going the rounds of the bee-keeping world, all go to show that large entrances will have to come. And, all in all, I believe that they afford the best solution of the problem of better ventilation. As the editor of the *Review* well remarks, a large entrance can easily be contracted, but a small one can not be enlarged. Putting blocks under the four corners of the hive necessitates prying the hive loose from the bottom, and breaking one's back to get the hive up. How much easier to manipulate a stop or slide weighing an ounce or so to contract a large entrance!—ED.]

"WE USUALLY FIGURE on about 10 pounds of honey per Langstroth frame" is the statement on p. 852. I changed my views about weight of combs after some weighing. Please weigh some. I'll not reproach you with being fickle-minded if you change that 10 to something nearer 5. [After the estimate was printed, the thought struck me that I had put it too high, for the cold print afterward made it seem to me too big; so when I came across this Straw I was quite ready to give up. At all events, following your suggestion, with a pair of spring scales I trapsed down to the house-apiary through the mud, where we have stowed away a lot of sealed combs of sealed honey, which we always keep on hand for colonies short of stores. I weighed some of the heaviest of these, and the scales showed 8½ lbs.; the medium weights about 6; the light ones about 4; so I shall have to acknowledge, doctor, that 5 lbs. would be a correct estimate to place upon combs as they are usually filled in the hive with winter stores. My estimate of 10 lbs. was based on the fact that, years ago, when we were extracting, we had a good many combs that weighed 10 lbs.; but I had forgotten the fact that we then spaced our frames 1½ inches from center to center, instead 1⅜, as we now do. The thought also stuck in my mind that some of our heavy extracting-supers, which I lifted to put bee-escapes under, must weigh (according to my back) nearly a hundred pounds; but they probably did not stand over 75, including the hive-body.—ED.]

Ridge-Pole Musings.

Land Sharks; Something of Importance to Those Who Contemplate Going West; Failure of Water Supply in Irrigated Districts.

BY R. C. AIKIN.

The original plan of our trip was to see the Arkansas Valley, with a view of locating there. I could not make up my mind to leave the alfalfa country entirely. Besides, after one has lived a few years in a dry country he has a dread of rain and mud, so I hoped to find in the Arkansas Valley a low enough altitude to suit my wife, and yet remain in the alfalfa country, dry climate, and irrigated lands. The difference in latitude between the Big Thompson Valley at Loveland and the Arkansas Valley makes the winter about four weeks shorter in the latter. The wintering problem is not so much to be feared as we get more south, which thought also led us in that direction. We intended, however, to view the valley to at least near Central Kansas, thence go north to Lincoln to be at the meeting of the North American in October, beginning the 7th. From Lincoln we were to pass east into Southwest Iowa, my old home, then from there south through Missouri and Arkansas to Texas. As we left Loveland Sept. 2d we had but 34 or 35 days to make a drive of 800 miles or over, see the country, talk bees, and other matters, and visit some friends along the route, etc. Counting out Sundays and all other stops we must average about 30 miles a day, else we should miss the convention. We arrived at Lincoln just after noon of the first day of the convention.

I think perhaps a goodly number of the readers of GLEANINGS will be interested in knowing what we found on that trip, hurried as it was. Some are looking westward for locations because the state of their health demands a change. Others are looking only to find a place to obtain big crops and make money. All together I know that many are anxious to know what is in the West for them, and, knowing this, it is my desire to show Colorado as it is; and right here I want to say to all who may read this, that, should you get "boom advertisements" of favored locations in the West, don't you believe the *lies* they tell.

The Arkansas is a large stream. We found considerable water in it at Pueblo, and quite a strip of country down the valley that was watered and making comfortable homes. This river, as do nearly all mountain streams, has a rapid fall. A stream to supply irrigating water at any reasonable cost must have from 10 to 20 or 30 feet fall to the mile, that the water may be gotten out to the lands without the ditches having to be very long.

Reader, just think of any ordinary river that you know of, then think how many ditches or canals it would take to lead *all* its waters out. A ditch five to twenty feet wide here; another a little further down on the other side. Travel along your river for fifty or one hundred miles, and see every few miles ditches that are almost rivers in themselves, and many smaller ones, all leading the waters out, these ditches themselves being divided and subdivided, spreading out the waters until they simply run out, and you have some idea of how the waters of our streams are utilized.

Think of it in another way. Think how the tiny streams from a great spread of country keep gathering into one another, uniting and reuniting until they become rivers. Just reverse the whole order of this, and send the water out into the vast army of little streams and springs, and you have a system of irrigation in operation. Thus it is that the waters of large streams are turned from their courses and spread upon the *dry* earth until the riverbed becomes dry. Before we got out of Colorado we forded the Arkansas (rather, crossed without a bridge) where the channel was nearly half a mile wide, and not one drop of water was visible—nothing but dry sand and gravel. Now, suppose you had been an early settler there, and had made a ditch from the river, and watered your farm. In the course of years many other settlers have passed beyond you, and taken claims, and made ditches until the river brought you no water, making of your farm what it originally was—a desert. Well, just such things did happen, in more or less degree, until our legislatures took hold of the matter, and now it is so that, as long as the stream has in it "*unappropriated* water," one may *appropriate* and take out water; but since the snow supply in the mountains varies, and as it becomes less, the last appropriation is the first to be denied the right to draw until the "prior" rights are satisfied.

Last year was one of short water-supply, and we saw ditches that had not had water in them the whole summer—ditches miles and miles long, covering dozens of farms, and costing thousands of dollars. I verily believe that there is enough barren land—barren only for lack of moisture—east of the Rocky Mountains and west of the Missouri, to consume the waters of both the Missouri and Mississippi.

Now, can you realize what it is to come to Colorado to farm? No, you can not. Come and see it, and still you can not fully realize it. Some boom paper will offer "lands under ditch;" and when you buy and go to farm it you find the ditch dry, or nearly so. Colorado has some fine productive farms, some well-watered country, some nice cities and towns, and, above all, a sunny and rather genial climate; but if you are not familiar with conditions and environments, come and see it before you sell out and leave comfortable homes elsewhere. Almost every one knows pretty much what the East is; but very few in the East know what the West is.

The Arkansas Valley is surely very productive where they have the water-supply; but the river, though a large one, can water but a narrow strip of country through which it passes. We saw fine farms and quite a number of apiaries in the valley. We also saw quite large tracts of alfalfa where there were few or no bees to pasture it At Rocky Ford was that extensive apiarist Mr. Hagan. We called at his home, but he was down street. We went down street and met him. I have ever since had a suspicion that friend Hagan did not want any more bee keepers spying out that country, so we passed on. I don't know how much honey that vicinity produced, but melons were everywhere. I was told that, up to that time, about September 15, over 400 carloads of melons had been shipped out.

Las Animas seemed to have many bees too, and there we called at the home of Mr. Oliver Foster, but no one was there. Before leaving town we learned that Mr. Foster and family were out of town for a day or two. As we must be at Lincoln on time we could not wait, so passed on.

We traveled that valley, I suppose, for 400 miles or more; and while there are some good honey locations, there are many more places that would not support even a small apiary.

We have talked much about water. We call the Missouri the "Big Muddy," and I think the Arkansas might be called the Little Muddy. I do not know about the North Platte, but I do know that the South Platte and the Arkansas, and some other streams as well, are so muddy and so alkaline that they are not "respectable" to drink from, and sometimes wholly unfit to either drink out of or wash in.

Very much of the country near the mountains, and in many localities all over the arid regions in particular, is full of alkali. Where irrigating is practiced, the water leaches out the alkali and carries it in solution, so that, wherever the water is found again in springs, wells, or swamps, it is unfit for use. In almost all of the irrigated country with which I am acquainted, a very large per cent of both well and running water is alkaline. A large per cent, however, of the streams before they leave the hills are as clear as crystal, and free of alkali. The cities of Fort Collins, Loveland, Berthoud, Longmont, and Boulder, all near the mountains, and drawing their supplies from above irrigation, have good water. Denver is only medium, while down the Arkansas the only good drink we could get was by eating melons. I am thankful we passed through that valley in melon season. Eastern Colorado, off the streams, where "deep wells" are put down to "sheet water," has good water.

To find church privileges, good water, good markets, good honey resources, etc., in combination, is what we failed to do.

(*Continued.*)

[Permit me to say a word in regard to farms located where the supply of water is likely to be exhausted. We saw quite a few of them in the neighborhood of Phœnix, Arizona; and I do not know of a sadder sight than a farm where some one has tried in vain to make a home, and, after having expended both time and money, to see every thing go to ruin just because water was all gone before it reached his ranch. Lots of swindles have been perpetrated, so I am told, by the land speculators, along this very line. My friend Elvey, whom I have mentioned, gave me one case by way of illustration. A friend of his got into the toils of these land pirates; but Mr. Elvey got hold of him in the nick of time, and gave him fair warning. He refused to have any thing to do with them, and went back home—quite a distance, by the way. After he reached home he received a letter from these same fellows, telling of some unforeseen train of circumstances where a valuable piece of property was to be sold for a song, and they finally offered to pay his expenses both ways in case he declined to take up with the offer. He went back again, and the sharks succeeded so well in convincing him that his chance was only one in a thousand that he made the deal without consulting his old friend Elvey at all, and then found that he had been swindled out of almost every thing he had in the world. He moved on to the place, however, used what little means he could scrape up to go on and raise crops, and then became bankrupt. The men who had robbed him just laughed when he tried to get them to stand by what was only a *verbal* agreement. If you want to buy property, talk with the farmers who are working the land, and not with the land speculators.

In regard to the luscious melons grown around Rocky Ford, we were surprised last season to see that some of them had made their way into our Medina groceries. They were snapped up at once at an advanced price because of the world-wide reputation of these same melons. Permit me to add that we have been having quite a little business in the way of making crates for cantaloupes to be shipped to melon-growers, by the carload. You see there are choice and valuable localities for growing crops under irrigation; but you do not, as a rule, find them in the hands of the land speculators.—A. I. R.]

TOMPKINS COUNTY BEE-KEEPERS' CONVENTION AT GREENFIELD, N. Y.

My Trip Through Another One of the Great Honey Counties of York State; the George Junior Republic.

BY ERNEST R. ROOT.

You will remember that I left Groton with Mr. Miles Morton, in a buggy, to attend the convention at Freeville, which I had been invited to attend; and that, on the route, we stopped to take in one of Mr. Morton's portable house-apiaries, and take a snap shot or two, the result of which has already been given on page 807. Leaving the house-apiary we proceeded on our way to Freeville, a small town located at the junction of two railroads. As it is a sort of pleasure-resort, and is so centrally located, it was selected as the place of meeting of the Tompkins Co. bee-keepers. Arriving there, we found that the bee-keepers had already begun to assemble; after a general hand-shake and an elegant picnic dinner, we were called to order by Pres. Wood. I will not attempt to rehearse the discussions that took place at that time, as they are now too dimly fixed in my mind. I do remember that I was given two or three friendly "shots," which I suppose were designed to wake me up. I was suffering at the time from a horrible cold—a sort of influenza that I had caught on my return from the Seneca Co. bee-keepers' convention some two or three days before. A night ride on the bicycle, and then afterward, wet with sweat, sitting in the delightful breeze of the cool summer air, so refreshing and grateful, gave me what I deserved.

There were present at that convention a number of bee-keepers who had colonies aggregating from 300 to 1000, and who were just full—yes, brimful, running over—with facts and experiences in regard to bees. Both during the convention and after it I made it a point to pump those fellows as much as I could; and some of the things I have already given to the bee-keeping world have come from those same men.

The president, Mr. Wood, after giving me an introduction, told me that I was expected to occupy the rest of the time; and then those bee-keepers, with their colonies running up into the several hundreds, began to "pump" *me*. I suspect I told them all I knew about bees, and perhaps some things I did *not* know. Taking it all in all, we managed to have an interesting and lively time. Before the adjournment of the convention, I secured, as a matter of course, two views of the bee-keepers.

THE MAN WHOSE BEES DID NOTHING BUT SWARM.

At this convention there was a unique and interesting old gentleman named Luther Greenfield. He had a hundred or so colonies within a quarter of a mile, and invited all the bee-keepers present to visit his apiary. About half of us accepted the invitation. Mr. Greenfield acknowledged that he for some reason could not get as much honey as the other fellows who boasted of their big crops. He almost intimated, in his good-natured Yankee nasal twang, that he did not believe that "them 'ere fellers" could get any more honey than he. In the course of a good-natured banter it leaked out that he had anywhere from six to twelve swarms out at one time during the height of the honey-flow. "Why," said he, "I can get swa'ms, plenty of 'em; but somehe'ow I can't git any honey like you fellers claim."

The "boys" rather poked fun at him a little, because he had, within half a mile of his apiary, one field of buckwheat aggregating a *hundred acres* or more, and various other small fields within range of his bees. I think it was Niver who called upon Mr. Greenfield at one time, and found him employed in the apiary, trying to take care of about six or eight swarms in the air. He was barehanded, barefooted, bareheaded, and baldheaded in the bargain, and the "bees stinging just like Jehu." "What in Sam Hill made the bees swarm so," he could not understand.

"Why," said Niver, "your hives are too small, and your acreage of buckwheat is too large. Give them room—give them room."

While the bee-keepers were in the yard I took one or two snap-shots, one of which I reproduce herewith. Mr. Greenfield himself is in the center of the group, with smoker in hand, just proceeding to open one of his hives. Veil? He did not want any thing of the sort. What did he care for a few stings? At the extreme right of the picture, with white straw hat, is Mr. W. L. Coggshall—the man who manages, with two helpers, a thousand colonies in nine different apiaries. The furthest yard, I think, is some forty miles from his home, and the nearest is some three or four. Just in front of Mr. Coggshall, with his hands behind him, with straw hat, is the secretary of the convention, Mr. J. L. Kinney. Just in front of Mr. Kinney's right, with white beard, light suit, is Mr. Miles Morton, who needs no introduction to our readers.

I was introduced to all of the bee-keepers there present; but for the life of me I can not remember another one save the young man at the left of the picture, who has a straw hat in his hand. That is Mr. Coggshall, junior, who helps his father considerably in the management of their extensive apiaries.

HARRY HOWE, THE LIGHTNING OPERATOR.

Just back of Luther Greenfield, with his head obscured from view, is Mr. Harry S. Howe, of Ithaca, N. Y., but formerly in the employ of Mr. Coggshall, of West Groton. Mr. Howe is a young man in whom Mr. Coggshall has taken a special interest — in fact, almost brought him up. Harry was bright, active, and earned the title of being one of Coggshall's "lightning operators." "Why," said Mr. C., "that boy could handle more colonies, and extract more honey—in fact, do any other work among the bees in a given time — than any other man or boy I ever knew." Harry has had to work his way through life from a boy up. He worked days and studied evenings, and latterly has for a number of years taught school. It was he who subsequently showed me through the buildings of Cornell University; and while he did not profess to be one of its students or graduates, he seemed to be well up in some of the departments of learning of that institution. But I suppose one reason why I was attracted so strongly to Harry was because of the fact that he is an ardent bicycle man. While I was with him part of one day we talked not only bees, but bicycles and every thing connected with them.

But to return. I took two or three snap shots of Harry as he was riding on his favorite bike—one he made himself; but, unfortunately, it was near the end of the film, and the pictures were "no good."

After I had taken the view shown herewith, I proposed that Mr. Greenfield "hare up" his bees, and while they were making a "scatteration" among the bee-keepers I would take a snap shot. Mr. Greenfield readily did the "haring up"—yes, he did it to perfection—and the bee-keepers did the rest—performed the windmill act, jumped over hives—in fact, retreated in a hasty and inglorious defeat. My camera caught the whole performance; but, unfortunately, my shutter was not set for quick work; and the consequence is, that every man who started to run left a streak of himself, as it were, on the picture, and the "streaks" were so badly mixed up that one could not tell which from t'other.

CHROMOTYPE ENG. CO. CLV'D. O.

TOMPKINS COUNTY BEE-KEEPERS AT THE APIARY OF LUTHER GREENFIELD, FREEVILLE, N. Y.

THE JUNIOR REPUBLIC AT FREEVILLE.

After we had enjoyed ourselves at the Greenfield apiary a few of us paid a short visit to the George Junior Republic, situated about half a mile from Freeville, and on top of a magnificent hill which commands a fine view of the surrounding country. The George Junior Republic—what is it? To many of you it needs no introduction. A certain Mr.

George, a young man of about 30 or 35 years of age, conceived the idea of taking up a lot of street waifs from the cities. He had no difficulty in securing this sort of material, you may be sure. By dint of hard work he managed to get men of means, and churches, interested. Some cheap buildings were constructed at Freeville, consisting of dormitories and other necessary buildings. The scheme was to organize these boys into a "Junior Republic." They were to have a president, vice-president, senate, house of representatives, police force, detectives, and all the other accouterments of a well-equipped government. The scheme was carried out, and the boys not only liked the idea of bossing themselves, but actually governed themselves in an admirable manner. I was told that some of the worst boys made the best police officers. They are taught civil government, given an inkling of some of the great questions of the day, coin their own money, establish banks, make their own laws; arrest, convict, and carry out their own penalties. Contrary to what one might expect, the scheme has proven to be a grand success, both from an educational and a moral point of view.

I had often read about this institution, and it was a real pleasure to see the thing itself, and to shake hands with the founder, Mr. George, a man whom we must all admire.

Just as we were about to leave, one little chap (our guide) spied a button that was on Mr. Niver's coat, which bore the words "Single Tax" upon it. Cocking his eye at the button he turned and said:

"What's single tax?"

"That's too big a question," said Mr. Niver. "I could hardly answer it now. But I suppose you could tell us all about free trade and the tariff?"

"You bet," was the response.

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THE NEW SECTION AND FENCE.

Comments and Suggestions.

BY DR. C. C. MILLER.

It is not always easy to get at the real merits of any new thing until the time comes when it can hardly be longer said to be new. On the one hand, some are so enthusiastic about it that they see merits that exist only in imagination; and on the other hand there will be those who think they clearly foresee grave evils sure to result from the adoption of the new thing—evils which never come to pass. As an illustration, I may refer to the introduction of comb foundation some years ago, and a still more marked case of recent date is the drawn foundation.

Now comes a fresh candidate for popular favor in the shape of a no-bee-way section with its accompanying fence separator. It seems a little strange that so far the only words spoken of this innovation are words of commendation. Possibly the time for adverse criticism is not yet. Certainly you, Mr. Editor, have presented the merits of the case not only strongly but enthusiastically. If it's a good thing, you have a right to be enthusiastic.

If you will allow me, I should like to discuss the matter from my standpoint—not by any means from a disinterested standpoint, but from the standpoint of one deeply interested. To get right down to the bottom, the question with me is whether the change will put more or less money in my pocket in the course of the next five or ten years. And I take it that, in the long run, you and I are not apart in that; for in the final analysis, whatever is a good thing for me as a honey-producer is a good thing for you as a manufacturer.

On page 817 you enumerate reasons that have induced you to make the fence and the no-bee-way section a part of the regular hive-equipments. That is equivalent to saying those are the reasons why comb-honey producers should use them.

Your first point is that, in the long run, the fence separators are cheaper than the old ones. If that point is fully settled, you have pretty well settled the whole question. I don't know that you are wrong about it, but I'd like to be more sure you are right; for it is one of the points of most importance. You say the fence lasts for years, while the old separator, after being used a year, had to be discarded for a new one. I confess I don't see why the fence will last any longer than the plain separator. The old separator will last for years. I think you will find a good many so using them. As a matter of economy, some throw them away after one year's use because it costs more to clean them than to buy new ones I think it will cost as much to clean a panel of fence as to clean a plain separator. If, then, I am to clean separators, and if it costs as much to clean one kind as another, there can be no economy in the fence unless I can buy it for less price than the other. The fact that it may be still cheaper to throw away the old separators and get new ones cuts no figure in the case, unless it be an argument in favor of the old separators. Now, if we know the price of the fence we can tell whether it will be economy or not. It may be economy for some and not for others, for all do not now use the same separators. It depends somewhat on the super. Some are now using separators that cost $4.00 or more a thousand, while others have those which cost $2.00 or less. However, if there are enough other advantages we can afford a little more expense, as we have done in many other things.

Carefully looking through your No. 2, I'm not sure I can raise any objection, although only trial can determine whether prettier sections can be produced with the fence. The only experience I have had in that line is with the Danzy super, which alternates the fence with the common separator. In some cases the sections are slightly ribbed opposite the spaces in the separator—not a serious detriment, but still a detriment. Possibly this may not occur with narrower spaces, and I have an impression that the sample of fence I saw in Chicago has smaller spaces than have the separators in the Danzy supers, for these last have spaces a little more than ¼ inch. Any thing that tends toward more free communication makes the bees more willing to enter, and, what is perhaps of as much consequence, more willing to remain—a point you do not mention. I suspect that, when a cold night comes, the more free the communication throughout, the less likely the bees are to desert the super.

Your third point, upon which you are not positive but hopeful, is that the fence will largely do away with passage-holes in the corners. I have just looked through the sections built in the Danzy super, every alternate separator being a fence. In every case the lower corners were unusually bad. The smallest holes were a shade less than half an inch long, but for every one as small as that there were three that were more than an inch long. Then I examined 12 sections filled between common separators, these sections having been thrown out of first class because not quite finished out, and I found 15 holes in the 48 corners, these holes being much smaller than the others. But it will not do to base a general principle upon so small premises; and it is only fair to add that the sections in the first case had only small starters at the top while the others were filled with foundation. Possibly this last might fully account for the difference; but it leaves the fact that, in some cases at least, the alternate separator being a fence, and only starters used, pop-holes in the corners will be bad.

The fourth point, that the fence is stronger, doesn't make any difference with me. I have never had any trouble on that score. Very likely it may be a fine thing for you who persist in using something inferior to a T super. It's a good thing to have the section-holder improved in some way.

Your fifth point is one that can not fail to secure attention, that the new sections will demand a better price. Whether that will hold good in all cases is a matter to be determined. You say the new sections look so much better. I put a lot of Danzy sections in two rows, the one showing the side next the fence, the others showing the side next the common separator. I was a little surprised to find less difference than I expected; and upon asking others, who knew nothing about what I was at, they didn't seem to see any difference till I called their attention to it. But isn't it possible that we have become so used to the leanness of the ordinary section that we are no longer impressed by it? I remember when I first used separators that I felt disappointed in the appearance of the sections as compared with sections without separators; and I distinctly remember, in a convention, James Heddon arguing against the use of separators, saying the sections had a lean look; and he threw a lot of meaning into that word "lean," as he drew it out to some length.

But whatever else may be said, if it remains a fact that the sections in question sell more readily or at a better price, then we can hardly afford to do without them. For if there is any advance in price at all, it is very likely to more than offset the small additional cost. We have testimony from more than one source that such sections do sell better. Until there is rebutting testimony, we must give this some weight.

I suppose I shall shock you by saying that I don't see much weight in your sixth point. It is true, as you say, that "it is not an easy matter to clean out the insets of the ordinary old-style sections." I don't want to clean them out. They don't need it. "You know better?" Hold on now, and don't get excited. I didn't say your sections don't need it, for they do. But mine don't You see, in a T super there is nothing touching the insets, so nothing to invite bee-glue into cracks. For you, no doubt, it will be an improvement of some consequence. Any thing that helps to obviate the defects of the section-holder will be a good thing for those who have nothing better.

Your seventh point holds good for those who use section-holders. Any thing to make their burdens lighter should be welcomed.

Point eight is worth figuring on—any thing that saves money in direct outlay. And I confess that, after a little figuring, it looks more important to me than it did. Take the popular 12-lb. three-row case at $7.00 per hundred. One hundred cases will hold 1200 ordinary sections, or 1500 of the new sections; 1200 of the new sections will take 80 cases. There's 20 cases, or $1.40, saved on every 1200 sections, or on every hundred cases one has to have in the old way. Let's see what that will do toward evening up on the separator business. It takes 5 separators in a 24-section super. That's 1000 separators for 4800 sections. As we saved $1.40 on every 1200 sections, we'll save $5.60 on 4800 sections—that is, the saving on cases will give us $5.60 to apply on every thousand separators. Say—why don't you tell us something about what the fence will cost? If you can furnish it at an advance of no more than $5.60 per 1000 over the price of the old separators, then we'll make money by using it, even if we can get no more in price for our honey. For the $1.40 isn't all we save on the 1200 sections. There's the making of the cases, the extra time handling and weighing, and that amounts to quite a little when one is rushed to get the crop shipped.

Probably you think I'm trying to find a good deal of fault with your new arrangements. Well, you see if some one didn't do something of the kind you'd be so set up that no one could live with you. But please don't resent it to such a degree that you'll say you can't furnish fencing that will fit T supers. For fear you should, I'll just mention that, in some cases, the saving of room will be quite an item. I mean the room the honey will take after it is in shipping-cases. And another item is that sections with the inset are liable to have the comb injured when standing in a case or on a table, by means of the side of another section being shoved against them. With the new section this is entirely impossible so long as both sections sit flat on the bottom.

By way of a parting word, I may say that the new sections will give some occasion to grocers' clerks to indulge in profanity. What kind of a chance is there to get the first section out of a case when all the space is filled up, and no room to squeeze your thumb nail between the tops of the sections?

[Doctor, you haven't read all of GLEANINGS. On page 828 you will find the cost of the new fence stated. While it is true it will cost more than the old-style plain separator, it will last longer and will be as cheap or cheaper in the end. It is also stronger and more durable. But right here you stick in a question-mark. The ordinary plain sawed separator is made of one strip of wood less than $\frac{1}{16}$ inch thick and 4½ wide. There are no cleats—in fact, there is nothing to stiffen it; and the constant handling of these, in and out of supers, has a tendency to break more or less of them; and the entire lack of stiffening causes some to curl and warp, rendering them useless. The new fence will be stronger than the old separator, just as a panel door is stronger than one wide door of the same width and length of one board, or as a cable made of strands of wire is stronger than a rod of iron of the same diameter. The new fence is made up of four slats and eight cross-cleats. If there is a slight tendency in one slat to twist or warp, that tendency will be counteracted or corrected by the next slat, and by the cross-cleats binding the whole four together.

With regard to the matter of scraping or cleaning, that will be much simpler with the fence than with the old separator. All that is necessary is to scrape the cross-cleats—an operation that needs to be done only once in two or three years, if I am correct.

As to the third point, regarding corner holes where you also raise a question-mark, I might say that I looked over a thousand pounds or so of Morton's honey—that is, I picked up sections at random from different supers and different places; and the remarkable part of it was that there were not any corner holes in any of the honey, so far as I can remember. This seemed to me very significant; and after I arrived home I fell to thinking about it more and more, especially when friend Danzenbaker showed me some of his slat-separator honey. I looked over quite a lot of it, and in appearance it was about the same as Morton's.

With regard to the better appearance of the honey in plain sections, I am rather of the opinion that, if you will place that same honey, one lot in one shipping-case and one lot in another, behind glass, your women-folks will detect the difference. I have shown, to quite a number, the two cases that were illustrated in GLEANINGS, and the verdict has been every time that the honey in the plain sections looked better; but for what reason the observers could not say, as they were not experts in judging honey.

So you do not see any weight in my sixth point, namely, the advantage of the plain section in point of scraping and stain? The best way to convince you would be to take you through York State with me, where propolis is smeared over every thing. There are some localities where honey has to remain on the hive for a considerable time, because the flow, while continuous, is very moderate. It is under such conditions that the insets of the old-style sections are badly stained.

While the matter of scraping may not be of any great importance with you, I am sure that, with 99 other bee-keepers, it means much.

We expect to be able to furnish fences for T supers and every other sort of super; but in the case of irregular or odd-sized ones, of course a corresponding price will have to be charged.

With regard to your last paragraph, I grant it seems as if the new plain section would be more difficult to remove from shipping-cases; but the fact is, all shipping-cases should be provided with a follower and wedge, both for safety in shipping and for convenience in taking irregular sizes of sections. For example, our regular 24-pound shipping-case, by the use of the follower and wedge, or by the omission of either one or both, is adapted to take either 7 to the foot, 1½, or 1⅞ sections, or even two inches. Well, then, when the grocer receives his cases of 1½ sections, all he has to do is to remove first the wedge, and then the rest is all easy; and speaking of wedges reminds me that twisted paper stuck in between the side of the super and the follower is the very best form of wedge that can be devised. It answers as a very nice cushion as well as a wedge.—ED.]

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BEAN HONEY AND BEAN-GROWING.

BY C. A. HATCH.

To the average bee-keeper of the Eastern States, bean honey seems to be a myth — one among the many conjured up in the fertile brain of a Pacific-coast resident; and talk of bean-fields suggests to him only the garden-patches of his neighbors, or possibly a field of an acre or so grown by some ambitious one; but to think of a farmer putting his whole farm into beans, and lima beans at that, is unheard-of rashness. But here in California a good many things are possible that in the East would be quite impossible. Not only do farmers plant their whole farms to beans, but very large farms at that. One ranch near Ventura has 1900 acres, mostly in beans. The crop of this one ranch was 19 carloads one year. I saw 10 two-horse teams cutting, and 25 men shocking beans on their ranch this year, at one time.

How would it seem to see rows of lima beans one mile long? Impossible! you say; can not get poles enough for so many. But there are no poles used, and the large running lima is the kind grown, too, mostly. Some few Burpees are grown, but the large kind give the best satisfaction.

Ventura is called the bean county, and rightly, for three-fourths of the beans grown west of the Rocky Mountains are grown within her borders. Other parts of the State grow other kinds, but Ventura stands at the top for limas.

Thirty thousand acres is about the amount planted this year, which is 10,000 acres less than last year. The crop last year amounted to 1700 carloads. One thousand pounds is called a good crop; but 2500 pounds has been grown on one acre without irrigation.

The beans never, as a rule, have a drop of rain fall on them from the time of planting to harvesting. The moisture in the ground, and the ocean fogs, furnish all the moisture; no rains to hinder cultivation or stop harvesting; but weeds grow all the same, rain or no rain, and cultivation must be prompt and thorough.

The beans are planted in drills about three feet apart, and 10 to 12 inches apart in the row, by a machine putting in three or four rows at a time. Cultivation is done by horse power, and but little is done by hand; but if weeds get into the rows, hand-hoeing is necessary, for few weeds are allowed to grow to take moisture from the main crop; and after the beans are cut and cleaned off, a sheep would almost starve on 100 acres, so clean are the fields kept.

Harvesting is done with a sled-like machine having two knives extending in and sloping backward, one from each runner. Each knife cuts one row, and an arm of iron placed just back of the knife throws the two rows together. Men follow with forks, and bunch the beans, where they remain until hauled to the thrashing-floor or thrashing-machine.

Thrashing is done in two ways—by a thrashing-machine or by tramping out with horses or "floors" prepared by smoothing off a piece of clay ground, wetting it so as to make it soft, then pounding until hard and smooth. In this method a disk harrow is frequently used to draw over the beans, one man following close behind the harrow and horses, with a fork to loosen, and toss the vines toward the center of the track around which the horses move. When enough are tramped out, the rubbish is cleaned out by a "cleaner"—a kind of fanning-mill suited to the business.

All beans are handled in gunny sacks, which go with the beans when sold; in fact, all kinds of grain, potatoes, and every thing that can be sacked, is put into these same sacks, which, by the way, are the source from which comes most of the smoker fuel used by the California bee-keepers.

Bean honey is white and of fine quality, but not positive in flavor, like clover or basswood. It never gets as thick as sage honey, and is prone to candy quickly.

The honey crop from this source is rather uncertain, as it seems to be very sensitive to weather conditions; too much sunshine dries the blossom, and hence dries the honey; and too much cloud and fog prevents the bees working, even if there be honey. This year the bloom was abundant, but the right conditions of weather seemed to be lacking. Just what those conditions are, it is hard to tell.

The greatest benefit to be derived from this source, it seems, is to make it a source of food supply in years of failure in other honey-plants; for, no matter how good a location one might have for bean honey, its uncertainty and shortness of flow would hardly justify any one in running an apiary for that kind of honey alone. The very source of prosperity to the bean-plant (ocean fogs) seems to be honey-destroying to other plants. The fodder, or bean straw, from lima beans, makes excellent feed for dairy stock; and horses, when accustomed to it, do well on it. The straw is baled and sold the same as hay.

Pasadena, Cal.

[Friend Hatch, you have given us several points of value to bean-growers here in the East. First, beans are a dry-season crop. I have noticed for years that drouth never seems to hurt beans at all, but rather seems to do them good when the soil, cultivation, etc., are as they should be. Again, the old-fashioned pole lima beans give more bushels to the acre, at least so I take it, than Burpee's bush lima. But they are so much less trouble here in the East I think we had better take the Burpees, even if we do not get so many, especially where we are growing them by the acre.

Very likely your great bean-farms have been the means of bringing about the present low prices on all kinds of beans. We see California limas quoted at 3 cents per pound. That would be less than $2.00 a bushel. I have often wondered why these California limas would not be just as good to plant as seed beans that cost from four to five dollars a bushel here in the East. Has anybody tried it? And I wonder, too, why beans would not succeed in any desert land where it never rains at all. Your suggestions in regard to the ocean fog perhaps hit the point at least partially.

Finally, if it is a little discouraging to the grower to have beans so cheap, it is a great blessing to the hungry and starving people in different portions of this world of ours. I have been told that a pound of beans will keep up a man's strength longer than a pound of any other grain or vegetable, or any sort of meat. I hear just now they are talking about getting beans to Alaska, to save the starving miners. We are very much obliged to you for what you tell us about bean honey. It seems that the bee-keeper is not always absolutely sure of a crop anywhere on the face of the earth, even where there may be thousands of acres of beans, alfalfa, or white clover right in bloom.—A. I. R.]

LARGE ENTRANCES TO HIVES.

Especially Adapted to Wintering.

BY THADDEUS SMITH.

When I was a boy, some 55 years ago, my father kept quite a number of bees. It was, of course, before the invention of movable-comb hives, and the bees were in the old-style box hives. At that time the bee-moth was very numerous, and it was supposed that the moth-worm destroyed many colonies of bees; and hence inventors turned their attention to making moth-proof hives and patent moth-traps, which were offered to bee-keepers as sure remedies against the ravages of the moth.

My father was an experimenter in this line. The worms were found in large numbers under the edge of the hive where it rested upon the bottom-board, where they had taken refuge when dislodged from the comb. I was required to go around to the hives early in the morning, raise the hive, and kill the worms. Chips were placed about the entrances for the worms to hide under so that they could be killed. He noticed that the worm, in making its web or cocoon, cut away some of the wood near it and worked it into the cocoon. He reasoned that, if they had no hiding-place, and no wood to form their cocoon, they would either die or be destroyed by birds and poultry. Acting upon this idea he raised the hives ¾ inch above the bottom-board by driving a big fence-nail in each corner of the hive, leaving the ends projecting downward ¾ of an inch, and, removing the bottom-board, put each hive upon a smooth flat stone. I don't know that this was an effectual remedy for the moth, but it gave the bees a good chance to carry them off, and we did not have to kill the worms any more; and it is a good case of a large entrance. This all-around entrance was never closed or contracted, winter or summer, and, so far as I know, the bees never suffered from too much ventilation. I do know that many of these hives remained in that position from 8 to 10 years without change. I never knew loss from wintering unless there was a deficiency in honey. How about the difficulty these bees would have in getting up into the hive? Well, I never saw them climb the four iron stairways, but "they got there all the same."

Pelee Island, Ontario.

[I have yet to hear of one bad thing against large entrances; and, on the other hand, we are getting letters every day indorsing them. In a year or so we shall all wonder how bee-keepers *could* be so stupid as to get along with small entrances for so many years. One reason, I think, for making the entrance only ⅜ deep was to keep the mice out. But what does the mere matter of mice amount to in comparison with the other great advantages of better ventilation, prevention of bees loafing on the outside during the height of the honey-flow, and, to a considerable extent, the reduction of swarming? Mice! They ought to be trapped, or held in check by cats.—Ed.]

* * *

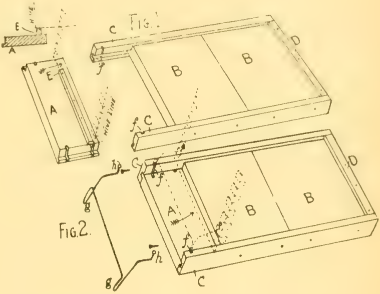
A NEW STYLE OF BOTTOM-BOARD.

An Ingenious Idea.

BY W. A. CAMPBELL.

Mr. Root:—In reply to your favor of Oct. 9, offering to illustrate my new bottom-board in Gleanings, I shall try to make plain the manner of its construction and use.

Fig. 1 shows a bottom with alighting-board lying in front. The boards B, B, are joined together with ½-inch lap. They are each 9⅜ in. wide by 12⅞ long, ⅞ thick, with tongues on their ends, ⅜ in., let into grooved side-cleats, C, C. The side-cleats are ⅞x1⅝ in., 21⅞ in. long. D is a strip ⅜x⅞ in., 12⅛, nailed to B. A is the reversible alighting-board, by means of which three sizes of entrance may be had. It is 3⅝ in. wide, with projections on ends similar to boards B, B, but a trifle less, that it may slide freely in grooves. If, in Fig. 1, board A is pushed directly into grooves in cleats, C, C, it gives the regular ⅜ size of entrance as in the Root bottom-board; but reverse ends and slide in place, and the ⅜ strip nailed at E comes under the hive-wall, and contracts entrance to ⅜x⅞ at E. Next reverse *sides* of alighting-board, as shown in Fig. 2, and you have an entrance ⅞ in. deep, opening right into space at ends of frames, and extending under their ends ½ inch, or to board B, thence a ⅜ space to D.



The wire device in Fig. 2 is designed to keep board A in place, and to hold the entrance-guard or blocks and wire cloth when bees are moved. The loops *g*, *g*, are slipped into holes formed by the junction of saw-cuts in end of board A with those in cleats, C, C, at *f*, *f*. The eyes, *h*, *h*, go against hive-wall, and may be secured with a couple of screws for safety in moving bees. For those who do not care to fuss with wire, two wire nails will hold the board to place.

The ⅞ entrance ought to afford ample ventilation for a large colony, and greatly facilitate the hiving of swarms. In hiving swarms I would remove the alighting-board and set the hive right on the ground.

If Mr. Danzenbaker would combine my reversible alighting-board with his reversible-bottom-board idea so as to give the ⅞-deep side for cellar wintering he would have a bottom with a wide "range of adjustment" embracing many desirable features. However, in the South, where we winter on summer stands, I hardly think we need the ⅞ space under frames full width and length of hive. We need only to contract our entrances in fall, which may be quickly and easily done with my reversible alighting-board, whether the bottom-board be fastened to hive, or loose.

Cisco, Ga., Oct. 23.

[This bottom-board is very ingenious, and when it first came to our notice we were very much taken with the idea. Yes, we almost thought of adopting it; but we came to the conclusion that a deep space of ⅞ inch under the whole brood-nest, as afforded by the Danzy bottom-board, was very important—almost as important as a deep entrance. Then it seemed to us also that the Danzy board would be about as easily reversed as this entrance-strip. For these and other reasons we decided on the Danzy for 1898.—ED.]

* * *

THE MARKINGS OF QUEENS AND DRONES.

Unusual Results in Breeding and Introducing.

BY A. NORTON.

Dr. C. C. Miller:—You may answer this in GLEANINGS:

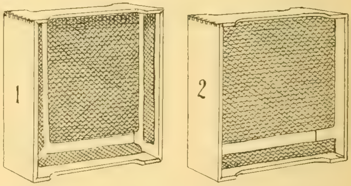
Is it not generally stated that you can better tell of the purity of a queen's mating by her queen progeny than by her workers — that is, that her young queens will more surely be striped if they are not pure Italian, while her workers may be very yellow? I have seen such statements, though I believe the Roots lay much stress on uniformity of workers and less on queens. But what do *you* think of this? I have a Carniolan queen from a pure one that I got from the East — a fine tested one. My own drones were golden Italians. Many colonies of black bees are near by in hives and trees; and one neighbor, 1½ miles off, has Italians, blacks, and all grades of hybrids. This young Carniolan queen's workers are, about two-thirds of them, black, without a sign of yellow, and about one-third of them yellow, showing generally three bands. When her bees first began hatching out last summer I thought she had mated with one of my five-banded drones. But when I see now the preponderance of bees that are all black, I wonder if she did not meet a drone having black and yellow blood mixed. Having another colony to which I wanted to give a queen at once, I recently gave them this same Carniolan, and sent east for an Italian to replace her in the mixed Carniolan colony. As said queen was long in coming, I let the first young queen hatch out that the virgin or bees might make surer work than I would of destroying the other cells. When the queen came from the East I destroyed this virgin, and found her to be as yellow, clear to the tip, as any golden Italian virgin I ever saw — no, but almost as yellow. She would have passed for an A 1 golden-yellow queen.

2. Would you think from the workers that the mother-queen met a pure or part Italian drone?

3. Do you consider the yellowness of the young queen as somewhat remarkable?

4. Is the following a strange instance for a dry time when no honey had come in for weeks? Colony No. 1 was queenless, and had been refusing a five-banded Italian queen from the East for several days. Colony No. 2 was but three or four feet away obliquely — or to the left, and behind No. 1. The hybrid queen of No. 2 had been killed a few days (only four or five days), and when I killed her I could not see a sign of eggs or brood in any stage in the colony. It was dry, and but few colonies were breeding any. One afternoon, just at sunset, I gave No. 1 a thorough fumigation with tobacco smoke, and released the queen they had been so persistently refusing. Just before dark I searched the combs, but could not find her. Every day thereafter for about six days I searched carefully, but couldn't find her, dead or alive, in the hive or on the ground. Finally, having need for some reason to open No. 2, I found therein a fine bright yellow queen (looking much like the one I thought I had lost), and brood nearly ready to seal, as well as eggs, etc. Since then her progeny prove to be pure five-banders. When I released her in the hive, after the fumigating (I had taken her out during the process), she must have left at the entrance during the turmoil, taken wing, and alighted at the other queenless colony, which must have readily accepted her. Is not this a little remarkable for the dry time of year?

5. Concerning your remarks in both *American Bee Journal* and GLEANINGS about bottom starters, I tried them by way of experiment, and also starters on all four sides, to experiment, consisting of a top starter reaching to within an inch of the bottom starter, and short enough to allow of narrow (about ½ inch) starters on each side. The bees finished the sections about like this, leaving the same gaps between the finished combs of honey as were at the outset between the pieces of foundation in the starters. Did you ever have any experience like it? A. NORTON.



Monterey, Cal.

[To these questions Dr. Miller replies:]

1. Your first question is one which I hardly know enough to answer; but I the more cheerfully make the attempt because the large experience of the editors will enable them to correct any misleading statements I may make. I have always had the impression that not nearly so much reliance was placed upon the appearance of the queen progeny as on the worker progeny of a queen. If my memory is correct it was not an uncommon thing in the earlier years, after the introduction of Italians, to have it said that it rarely occurred, if ever, that a queen of Italian blood would duplicate herself with any degree of uniformity. Her royal progeny would vary in appearance, some of them lighter than herself, some darker, while her worker progeny would be so uniform that no one individual could be distinguished from the rest. It is also a fact, if I am not mistaken, that, among the queens imported directly from Italy, there is great variation, some of them being light in color comparatively (perhaps never so light as may commonly be found after a few years' breeding in this country), and others almost if not quite as dark as a common black queen. It seems to me, however, from the limited op-

portunity for observation that I have had, that, while an Italian queen may be as dark as a common black, there is a difference in the shades of the two — the Italian, while being as dark as the other, having a rich (perhaps mahogany) tint not shown in the black. And yet these imported queens of such different appearances would all have the same worker progeny, of the same color, and the same number of bands. Now, if there is no mistake about these imported queens of different looks being all of true blood, there would be nothing but what should be expected that their royal progeny should present differences of appearance, while the worker progeny would be true to type.

I have been called to account for saying that no one could decide from the looks of drones or queens as to the purity of the stock, but with my present light that is my belief. To an inquirer I made the reply that I could not give the distinguishing marks of a pure Italian drone; and when scouted at by a queen-rearer for giving such a reply I asked him to give me those distinguishing marks; but never got any reply.

2. If you mean by Carniolans the gray bees that were first known by that name, and that the workers that you say were black were the same gray black as the full Carniolans, then it seems pretty plain that an Italian drone was met, as is usual in the case of a first cross, part of the workers taking after one parent and part after the other. And with that view of the case the bright-yellow virgin would be nothing strange. But from your asking the question as you do, I suspect that you mean the black workers were unlike the regular Carniolan workers, but like common blacks, in which case I don't know enough to reply. The workers being part yellow and part black, the drone might be of mixed yellow and black blood, but in that view the Carniolan blood of the mother is left out of the count altogether, and that leaves me at sea. Perhaps the editor can make matters clear.

3. Probably unusual at least; and yet whatever will account for the presence of the yellow workers will account for the yellow queen. She took after her sire.

4. The usual thing would have been for the bees to ball the queen when you released her from the cage. She did the unusual thing by running away from her pursuers and escaping from the hive. After that she entered hive No. 2, where she stood a pretty good chance of being killed, for the bees would be more likely to kill a queen that had been caged and chased; and, it being a dry time when they were not anxious to have a queen laying, her chances of life were thereby lessened. Still, they were queenless, and the odd chance came her way. Quite possibly she would not have been so well received in No. 2 if you had had a hand in the affair. But they were left entirely to themselves; and, although they may have balled her at first, being left entirely alone they released her.

5. No, I think I never had a similar experience. The only way I can think of such a thing happening would be that honey was not yielding very well, and as soon as the bees got well started on the foundation the flow became still more scant, making the bees finish out and seal over what they were already working on. I can hardly imagine such a case occurring in a good flow.

I may say, in passing, that I should consider it very objectionable to have an inch space between top and bottom starter — one-fourth inch at most, and then the bees will join the two starters together before the bottom starter has a chance to lop over or be gnawed down.

Marengo, Ill.

[I could adopt every paragraph of Dr. Miller's answer above as an expression of my own belief and experience, and, for that matter, I believe every queen-breeder could do the same.—ED.]

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N. Y.

KEEPING SURPLUS QUEENS OVER WINTER.

Question.—Will you please tell us in next GLEANINGS how to keep surplus queens over winter? If it can be done it would be very profitable to have a few extra queens, to take the place of any that might turn up missing in the spring. I generally supply many of my colonies with young queens in the fall, killing the old ones; but if I could only keep the young ones over winter, I should prefer it to doing as I have done in the past. I am thinking of caging several in a queenless colony. Will that plan work well?

Answer.—It is very doubtful about your succeeding in keeping a surplus of queens over winter by the plan you suggest, especially if you live north of latitude 38°, unless on the Pacific coast. In my younger bee-keeping years I tried almost every way I could think up or hear of to keep a surplus of queens over till spring; but to make the thing a practical success, I was obliged to have a colony of bees strong enough to occupy at least three spaces between combs, at this time of year. With what is termed a "four-frame nucleus," and by setting the same, with about ten pounds of honey, in the four frames, in the cellar, as early as November first, I could generally succeed pretty well till they were set out in the spring, and sometimes they would pull clear through to the honey harvest and build up to full colonies; but it would happen more often that they would rapidly waste away during the last half of April and in early May, till they would die entirely, or be robbed out by stronger colonies. Where I could tell about failing queens thus early, I could kill them and unite these little colonies with their young queens with the colonies from which I killed the queens. But I could see little in favor of this, beyond what would have been had I killed the poor queens in the fall and done the uniting at that time. Later on I was anxious for a surplus of queens in the spring, that I might fill early orders therewith, instead of taking queens out of my strong colonies, to the great disadvantage of the same, that customers might promptly get their queens. And, being evtremely anxious along this line, I tried many plans, the one our questioner proposes being among the number.

With nearly all the plans tried I could get along very well till about February, when colonies having several queens caged in their hives would begin to get uneasy, and die with diarrhea, or they would consume all their honey in and about the cluster, and move off and away from the caged queens "to pastures new," leaving the queens to die in their cages. Then I tried little nucleus-boxes, such as most queen-breeders used in raising queens in the early seventies, the same holding three or four little frames six to seven inches square. I would see that these little frames had three or four pounds of honey, and only about bees enough to consume that amount before spring fairly opened, when I expected to feed them. Four to six of these little boxes were placed over a good strong colony, setting these little boxes right on the frames, and fixing it so the bees of the strong colony would, or could if they were so disposed, cluster all about the bottoms and partly up the sides of the boxes, providing a way for the bees in the boxes to get out without mixing with each other or with the colony below, should those dying of old age wish to do so.

The little boxes were now covered all over with woolen blankets, and a hood or cap put over all, when it did really seem that they might go through the winter all right, in a cellar whose temperature never went lower than 45°. But with a trial of some thirty or more in this way I got only two through to where they could fly in the spring, while the colonies over which they were placed were lost, or became so weak that they were of little value during the next season. From these and many other experiments, which it would be superfluous to describe, I was driven to the conclusion that nothing could be gained in trying to winter over surplus queens; and if early queens must be had to a greater number than could be spared to advantage from full colonies wintered over, the cheapest and easiest way was to purchase them from the South.

If any reader of GLEANINGS has found out a practical way of wintering over queens to a greater extent than one to each fairly good colony, I wish he would tell us how it is done. If queens can be so wintered that each apiarist could have one extra queen to every ten colonies during the months of April and May, it would be a great help to every bee-keeper in the land, providing that the wintering of such queens did not cost more than the results which could be obtained from them during the year. Hence the importance of any reliable information on this point. Don't be afraid to add any "mite" you may chance to have along any line of our pursuit, thinking it will be of so little value that it is not worth giving, for it is the little "kinks" that give value to apiculture, when they are massed into one great whole.

"Fine building, sir," said a poorly dressed laborer to a man of fortune who was looking at a just-completed stately edifice in one of our large cities. "It took us many a year to bring it to completion; but now it is done it outshines any other building in this city."

"Took *you* many a year!" said the man of fortune, with a sneer in his tone; "what did *you* have to do with it?"

"I mixed the mortar, sir," was the reply; "and without the mortar that stately edifice could never have been completed. You may think me of no consequence; but by the grace of God I was able to add my mite toward the completed whole."

And just so with the structure of apiculture so far as it is now completed. Some have made greater "marks" than others; but we should never have reached the present heights had it not been for those who have "mixed the mortar," adding "here a little and there a little," till bee-keeping, during the year 1897, looms up as a stately edifice beside the small foundation laid a century ago. In helping each other we are giving "a cup of cold water" to some struggling brother; and the Master has said that the one who does this "shall not lose his reward."

Heads of Grain from Different Fields.

PARAFFINE PAPER; HERMETIC SEALING IMPORTANT.

I see by GLEANINGS quite a controversy about paraffine I had quite an experience with paraffine, not quite in accord with Danzenbaker, nor yet will it quite fit Dr. Miller's Straw on page 802. Reading Mr. D.'s article some time ago about paraffine it struck me as being rather nice. I would use it on my honey-boards for the hive I make (by the way, a hive I wouldn't give for the best dovetail ever made). I spread the paraffine on it hot, using a hot iron to make it penetrate the wood. Some of it accumulated in holes bored for the bees to ascend. On taking the honey from them I was rather surprised to find they had used the little clots of wax (paraffine) as though they were really beeswax, stretching it out into cells, thus convincing me they have no aversion to paraffine, but simply do not glue the parts together because they are already air-tight with paraffine. Dr. Miller's experience of finding glue on top of paraffine may be that, although he used paraffine, the two parts did not go together tight, therefore the bees made it air-tight with propolis.

You know, as well as any one, no doubt, that bees will have every thing tight. I am pretty sure that Danzenbaker is correct. Bees will use no propolis, provided made tight otherwise. Bees have no aversion to paraffine, as can be proven by rolling some into foundation. It will be found that they will use it the same as wax. Join your honey-board to your hive-body and seal the two hermetically with paraffine, and your bees will certainly use no propolis. LEE L. ESENHOWER.

Reading, Pa., Nov. 25.

[We have tried foundation made with paraffine and of pure beeswax. While the bees will accept the former, it is very evident that they prefer the latter. If you put the two side by side you will see the difference.

With regard to tight sealing, I believe myself Dr. Miller lost sight of this point in his test of paraffine paper. If used at all it must be cushioned down *tight* on the sections, otherwise it will be worse than useless. I am no "stickler" for paraffine paper, for, personally, I should prefer the bee-space over the sections, and the *cover* sealed down with propolis; but when the paper is used it should be applied as directed.—ED.]

USE OF PARAFFINE PAPER ON SECTIONS DEFENDED; GETTING PRIZE HONEY.

On page 734, Oct. 15, is an article by F. L. Thompson in which he condemns paraffine paper in covering sections in supers; and as Mr. Danzenbaker is invited to reply, and he seems to be playing clam to the music, I will say that, in my 15 years' experience in bee-keeping, and two seasons' experience with paraffine paper, with some 200 colonies of bees, for comb honey, I find a saving of several dollars, both in labor in cleaning sections, and better prices for honey produced by the use of the paper; and as I raise honey for the money, that is why I prefer to use the Danzenbaker section and paraffine paper in connection with his hive. Mr. Thompson says it was the combination of the paraffine paper with some other things that produced that prize honey, and that those other things are far more important. Of course, he is right so far as the honey goes, as honey gathered from buckwheat or other flowers that make black honey would not be prize honey, even with the use of the paper. But the paraffine paper will prevent propolis, to a great extent, in the entire super, as it retains the heat; and it is a well known fact that, the more heat there is in the super—natural heat—the less propolis. A proof of that fact is, as the season advances, and the weather gets cooler, the more they use.

The object of the paper is to retain the heat; and to fit snug on the sections I fit the paraffine paper and thin boards on the supers in the honey-house, and then take them out to the yard, and I have none of that fuss that Mr. Thompson speaks of. I would use it, even if I had to throw it away after once using it. The cost is small compared with the amount of labor saved in scraping sections. If Mr. Thomson has his bees in a good location, and will use the one-bee-way Danzenbaker section and cleated separator with the paraffine he will have no trouble in getting prize honey.

S. D. MATHEWS.

Hamilton, N. C., Nov. 17.

[If it is certainly true that there is less propolis when there is an air-tight sealing over the sections, then we must give more attention to that point. Who will corroborate or say it is not true? Let's have a lot of responses to this point.—ED.]

THAT HOOK ON THE SMOKER; A POSSIBLE IMPROVEMENT.

Say, Mr. Editor, that hook idea of W. L. Coggshall's, figured on page 779 is good; but just put the hook on the front of the barrel, as we have used it for the last ten years, and see how handy it is to hang on the side of the hive so that smoke can blow across the frames and keep bees quiet while manipulating. If put on the back of the bellows, as figured, it is necessary to turn the smoker around to have it in the right position for use. Doubtless you recollect occasions when having the smoker just ready to grab with one hand was a great satisfaction. We have used the hook this way on the old B. & H. smoker, and also on the new Crane. In the latter case it is simply a stout piece of hoop iron riveted on the barrel above the guard.

TWO CALIFORNIA CRANKS.

Los Angeles, Cal., Nov. 22.

[I don't know but you are right. I'll try one that way to see how it works and looks. Yes, there are times when one wants a smoker and "wants it awful bad;" and I have seen times when a second of time in grabbing a smoker would save a dozen stings. To be obliged to fumble after it, not knowing exactly where it is when it is wanted for instant use, is aggravating. But say, it just occurs to me that, if hooks were put on the fire-cup itself when the smoker was hooked on, the hive would be scorched and perhaps set on fire.—ED.]

BEES GNAWING OUT BOTTOM STARTERS.

I see in *American Bee Journal*, page 726, an item in regard to furnishing beeswax to bees, with remarks by Dr. Miller and the editor of GLEANINGS pro and con. I used foundation in the honey-boxes this year, putting in nearly full sheets with bottom starters. The bees worked all right during the heavy honey-flow, and filled the boxes from top to bottom, doing very nice work indeed. But in the late harvest the bees took out the bottom starters or strips of foundation and stopped the combs where the top sheets of foundation ended. I suppose, as Dr. Miller says, they put the wax in the propolis, but I am not old enough in the bee business yet to say where the wax went to. WM. H. EAGERTY.

Cuba, Kansas, Nov. 27.

[Putting "wax into propolis"—I don't understand you. I hardly think they would convert one into the other.—ED.]

A SPRAINED ANKLE; THOSE PLAIN SECTIONS.

GLEANINGS for Nov. 15 tells us of your passing here on that spurt just before coasting into Syracuse. Isn't it fun? I want to tell you some of my experience with a wheel, that you may escape such an experience. I started to visit my apiary, 7 miles away. In dismounting in a spot too rough to ride I stepped on the edge of a rut and thought I had sprained my ankle. Now, here is something to tell your friends. In dismounting, never step off backward, as you can't see where your foot will alight; but let the wheel tip over after slowing up, when you can see where you are stepping After doctoring a sprained ankle for four months I found I hadn't sprained my ankle, but had injured my foot. Now, after having my foot in plaster of Paris for two months, the doctor told me to-day to begin walking. The result is, instead of the nice start in bees I thought I should have, the bees are gone and I shall be in debt when I get so I can work again. I have had a long six months of it. I saw in a back number of GLEANINGS that Mr. Calvert had some of this kind of fun. Three years ago to-day I cut my other ankle with an ax while cutting limbs away from hives.

I am glad to see you using the section without a margin, as some here call them. Doubtless they are the coming section. I don't see how you are going to make them, but some around here made with one piece an exact duplicate of the other three, with a peculiar dovetail. Your italics at the bottom of page 817, first column, are right to the point.

IRVING KINYON.

Camillus, N. Y., Nov. 26.

[There is no difficulty whatever making one-piece plain sections.—ED.]

A REPORT ENCOURAGING FROM THE GREAT NORTHWEST.

I have just returned from a long excursion to Eastern Oregon, Washington, and Idaho, with other merchants from Portland, who were out making the acquaintance of numerous customers, many of whom they had never seen. I had been over the country before, and so knew something of the extent and variety of resources; but to many of our merchants it was a revelation. It is indeed an "inland empire," and in all our traveling of 1700 miles we did not see a discontented or dissatisfied merchant. The crops were simply immense. The prices were good. The farmers have paid up old indebtedness, and have money to lend. BUELL LAMBERSON.

Portland, Or., Nov. 23.

FOUNDATION FOR SHALLOW BROOD-CHAMBERS.

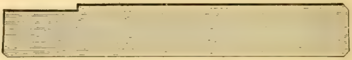
If two Dovetailed eight-frame hive-supers, each containing eight shallow well-wired brood-frames, were used for a brood-nest, could not extra thin surplus foundation be used in these frames in full sheets, and secure straight brood-combs comparatively free from drone-cells? If not, what is the lightest foundation that could be used with success?

Browning, Ill., Nov. 17. G. A. DYER.

[Extra thin would be a little too light; but what is styled thin super might answer very nicely.—ED.]

A SPECIAL SCRAPER FOR SECTIONS.

I think scraping sections with a common knife is hard and dangerous (for the honey), especially in the fall, when they put so much propolis on. I inclose a scraper which I made,



which is quicker, and with it you can't jab the honey. You can see how it works. It scrapes the edge and top of the section at once. JNO. N. PROTHERO.

Du Bois, Pa., Sept. 18.

[If we adopt the new (old) plain sections with no bee-ways, a common case-knife will be the best scraper after all. For the old-style section I have no doubt that your scraper is better.—ED.]

HOW TO WINTER BEES IN A WARM ROOM; PARTRIDGE-HUNTING.

I have learned something about wintering bees that is new to me. I have taken GLEANINGS for 20 years, and have not seen my way mentioned. I have been testing the method for three winters, with good results; now for the way.

I put them in a wire cage 30 in. long, as wide as the hive, and as high; that leaves a playground in front of entrance. Then I set them on a tight floor, so there is no possible chance for them to get out; then put them in a warm room and give them water. I have a house made on purpose, and have a stove in it. I burn wood, and keep the temperature from 45 to 90. You will think, when I say 90, that they would die. Try one and see. Do not keep them that warm all the time. When I build a good fire the temperature goes up that high quite often. The reason they die in a room like a living-room is because of a want of water. I keep mine in darkness till the 10th of February; then give them all the light I can, so they start raising young bees; then there is no spring dwindling.

I should like to have you come and hunt partridges about a week. It will cost you nothing for bed and board. You would need a trained dog if you wanted to kill many. I see as many as 40 some days when I am going round my bear-pens. There are some bears and a few deer left here yet. I am 63 years old. I have killed 59 bears and 81 deer. If you would come for a hunt you could go with me to the traps, three miles out. If we failed to get a bear we could get some birds. I have found lots of bee-trees—some good ones and some poor ones. I found one this fall in Potter Co. in a basswood. The hollow was 12 in. at top and 14 in. at the bottom, or an average of 13 in., filled 11 feet—more comb honey than a barrel would hold. If you could see the chance they had you would not think they had done any thing extra. ISAAC WYKOFF.

Cameron, Pa., Nov. 12.

[Your plan may work very successfully, but if carried out on a large scale it might be pretty expensive. But it is interesting to know that bees may be wintered in a warm room, under certain conditions; and one of those conditions seems to be plenty of water.

But, say, I should like to go on a hunt with you; but work, I fear, will hold me down too close for such a luxury.—ED.]

THE PLAIN SECTION AND FENCE; QUESTIONS CONCERNING IT.

Mr. Root:—On page 744 you speak of the comparatively no-bee-space section and cleated separator. You have no idea how you interested me, as I have had more or less thoughts relative to cleated separators with bee-space openings ever since I read with so much interest what the late B. Taylor said in March 15th GLEANINGS, 1895 And now the comparatively no-bee-space section filled out within ⅛ inch of the edge has more than doubled the interest in the cleated separator. I do not know how I could succeed with them, but it seems to me it would be grand.

In order to have the same capacity as the 1⅞ scored section, would not 1⅝, instead of 1½, be the proper size, as each separator cleat reduces the width of the section ⅛ inch?

While I suppose the cleated separator and narrower section would work on the 1⅞-inch section-holder, yet I think it would be much better to have the cleats go down between the section-holder, and rest at the ends on the tin bearing. If the section is narrower than the section-holder the bees will fill in propolis along the edge of the section—at least I think they would, as I have used straight slats for section-holder bottoms as wide as the narrow part of bottom of section, and on the edge of the wider part of section would be found propolis, gluing the section to the section-holder.

I did not receive the samples of drawn comb in time to give it a trial, but can see that it is a production of great mechanical skill. I think a ⅛ or $\frac{3}{16}$ raised cell wall would be sufficient, and easier made and handled. I am glad to learn that it can be made with natural-cell bottoms instead of flat bottoms

Did your staple for end bee-space at end of brood-frames give good satisfaction the past season? That seems to be of interest to me.

It occurs to me that the one who boils down "beedom" for the *Americm Bee Journal* must stand by nearly all the time and stir, as it seems to be boiled down pretty thick, and yet not scorched. J. W. SOUTHWOOD.

Monument City, Ind.

[The cleats on the fences we are making are just exactly $\frac{3}{12}$ of an inch thick. Assuming that the bee-space is ¼ inch ($\frac{3}{12}$) there will be one-third of the bee-space in the section; that is to say, the comb surface on the average will be $\frac{1}{12}$ inch from a straight-edge lying across the edges of the plain section. If we made the cleats only ⅛ inch thick on the fences then the sections would have to be 1⅝ inches wide.

The fences will be made to go *between* the section-holders, and this will, of course, require that they (the section-holders) shall be the same width as the sections; viz., 1½ in. When the fences are designed for the old-style section-holders they will be made to go *inside* of the holders, not between.

Yes, that staple for end-spacer gave excellent satisfaction, and we shall use it for 1898.—ED.]

BEGINNERS QUESTION

BY E.R. ROOT.

N. A. W., Wash.—We can give you no definite information as to whether locust honey candies quickly or not, as that which we have produced was sold almost as soon as it was capped over in the combs. The honey is not equal to clover, mountain sage, or alfalfa, in point of flavor; and in color it is a little darker than clover or basswood. We do not see any reason why you can not buy this as well as any honey, by sample. We have special mailing-vials for small samples of extracted honey. There is no reason in the world why you can not get a small sample by mail.

J. J. V., Mo.—1. The shallow extracting-frames, 5⅜ in., are a little handier to uncap than the whole-depth Langstroth frames. Where the seasons are short, or the honey comes in slowly, as it does in the majority of localities, a shallow extracting-super is preferable to one full depth. The latter is apt to discourage the bees, as it gives them too much room at a time to keep warm at the start.

2. A wood-bound honey-board provides the necessary bee-space above the brood-frames and between the super above. It is also at the same time stiffer and much more satisfactory in every way than the unbound zinc.

3. The ten-frame hive is not necessarily better than the eight-frame. It all depends upon the locality and general circumstances. Where one desires to run entirely for extracted honey, and the seasons are long, then the ten and twelve frame hives seem to be better; but in the North, where the seasons are short, and the honey-flow moderate, the eight will give as good or better results.

4. Comb foundation not used in the summer should be kept over winter in a room that will not go below a freezing temperature; and when it has been subjected to a freeze it should not be handled while in that condition. While freezing may not do it any harm, it certainly does not do it any good.

5. The bees should have only as many frames as they can cover comfortably just before cold weather sets in. The average colony of eight-frame capacity will take about six frames for winter; of ten-frame capacity, seven and eight frames.

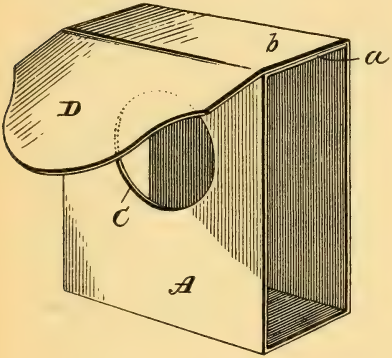
6. An ordinary Langstroth frame may hold anywhere from 6 to 8 pounds.

For further particulars in regard to these and other matters see our A B C of Bee Culture, and our catalog which we are mailing you, especially the last few pages. Prospectus of the A B C book is given on page 31.

TRADE NOTES
BY EARNEST R. ROOT.

THE DANZENBAKER SECTION-CARTON.

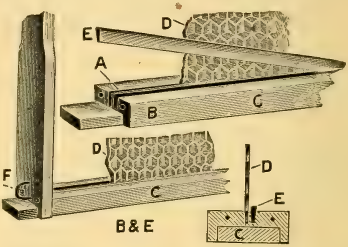
Mr. Danzenbaker has been turning his attention of late toward a cheaper carton than has hitherto been sold on the market. The one that he has devised is shown in the accompanying sketch. It perfectly protects the two faces of honey, and the top and bottom, but does not cover the ends of the sections. The section is slipped into the carton endwise; the flap D is folded over the opening, and that gives a view of the honey. Then a rubber band is slipped around the package. For the purpose of showing the honey the flap D may be lifted up, and the honey is shown from the opening as at C.



Just how far this carton may prove to be cheaper than the regular styles on the market I can not say; neither do I know whether the opening at C, with the cover-flap D, will prove to be of special merit. All these things will have to be laid before the unprejudiced bar of the consumer.

FASTENING FOUNDATION IN TOP BARS; THE SLOTS AND WEDGE METHOD.

For a number of years we have made our thick top-bars with a molded bead, the same as is illustrated on page 817. This molded edge forms an excellent comb-guide to the bees when no foundation is used, as well as an edge to which foundation can be fastened by means of the Daisy foundation-roller. While the majority of our customers have succeeded in fastening the sheets to this edge by the roller method, some few seem to be unable to acquire the knack; and as there has sprung up within a year or so a demand for the saw-kerf and the wedge method, we have decided to make this feature, for 1898, an option, without additional cost, on brood-frames, whether of thick-top or of the Hoffman. The method that we have adopted we regard as an improvement over some that have been put on the market, and is nothing more nor less than an old method used by the English bee-keepers for years, and for whom we have made thousands and thousands of frames embodying the feature.

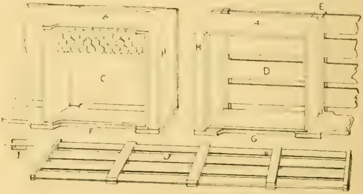


The accompanying engraving shows just the idea. There are double saw-cuts ¼ inch deep ⅛ inch wide, running exactly parallel, and separated by a film of wood about $\frac{1}{32}$ inch thick. One of the saw-cuts (the one to receive the foundation) is exactly in the center of the top-bar. The method of fastening is to slip the sheet, as at D, see engraving, into the saw-cut. The long wedge-shaped strip of wood, E, is then driven down into the other saw-cut, wedging the aforesaid dividing-film of wood tightly against the foundation, thereby making it fast. The engraving will make the thing perfectly plain.

The only objection I can see to this method —and it may prove to be quite a serious one in the future—is that foundation will probably be made with deeper side-walls than at present. It may not be practicable to make the saw-cut fit the variety of thicknesses of the different foundations on the market. The saw-cuts as we make them at present are adapted to the use of sheets of ordinary medium or light brood foundation.

FENCE FOR OLD-STYLE SECTION-HOLDERS.

Some of our subscribers have not understood how the plain section and fence could be used in the old-style section holders, especially when the plain sections are 1½ inches and the old sections were 1⅞. By consulting the accompanying drawing, I think the idea will be made plain. A E H D shows the plain section in the old section-holder. The width of the sections is exactly the width of the inset



at G. As the plain section is narrower by $\frac{1}{2}$ of an inch than the old section, there will be $\frac{3}{16}$ on each side to fill up. And this space is filled by cleats on the fence that are exactly $\frac{3}{16}$. B C H shows the old-style section-holder and separator, and a comparison of this with the other will make the idea plain. The artist has made a mistake. The cross cleats should drop down from the top slat by ¼ inch, and the slats themselves should project beyond the end-cleats a distance equal to the thickness of the section-holder end.

NO-BEE-WAY SECTION FOR THE DANZENBAKER HIVE.

By the way, Mr. Danzenbaker wishes me to announce that his hives for 1898 will be fitted with no-bee-way sections. He writes me that he is glad that I have come to see the value of the double-cleat separator and the plain section, and is now mean enough to insinuate thas he "told me so," but that I couldn't or wouldn't see the advantage of these things last year. However that may be, I was rather under the impression that he was a stickler for the *one*-bee-way section, and that last fall when I was arguing for *no* bee-ways he would not take them as a gift. But all is well that ends well. We are both in the same canoe, and are now looking for fair sailing.

By ER Root
Editorial

S. A. Niver, at the close of one of his letters, writes: ' I am about to start over my honey-route again—this time to collect bills. Selling and collecting are two entirely different matters." Mr. Niver has given us valuable information on selling honey. Will he now also tell us something about collecting? Does he go at his "poor pays" rough shod, or does he give them honeyed words and sixty days more time? By the way, I should like to hear from others of our readers who are successful in getting their pay for every pound of honey sold. A few little hints on this subject will prove very helpful.

HONEY-LEAFLETS AGAIN ; KEEP THE BALL A ROLLING.

I have already spoken of the fact that we are inclosing in every one of the letters that go from our office a copy of our honey-leaflet. I have also mentioned how it got into the hands of a government official, and of the liberal extracts that were made from it in one of the great dailies of Columbus, Ohio. This morning a clipping was laid on my table, taken from the Cleveland *Leader*. It related to the value of honey as food. As I read down the column it seemed strangely familiar, and it finally flashed through my mind that it was all from our honey-leaflet. The reporter had made some variation, and had himself dwelt upon the fact that honey is cheaper than butter, and that it never becomes rancid, etc.

How the *Leader* got hold of the matter I don't know. If we can only get into plate matter the material that Dr. Miller has so carefully prepared, and into the great dailies of the country, it will do a world of good to the industry. There is nothing in the subject-matter of the leaflet that advertises supply-dealers. It simply tells how good honey is, and, of course, will create a demand for it.

THIEVES AT OUT-APIARIES, AND HOW TO DEAL WITH THEM.

Our out-apiary is being tampered with again by thieves. Several hives have already been looted in the last few days. When the weather is warm, and the bees are able to use their wings, the apiary is not molested ; but as soon as it turns cold, and the bees are semi-dormant, then the depredations commence. We have made up our minds to stand it no longer, and have therefore posted, in several places, especially at the out-yard itself, the following :

> $100 REWARD.
>
> The above sum will be paid for the arrest and conviction of the parties stealing our honey and otherwise tampering with the bees at our apiary a mile and a half north of the American House, on the pike. For particulars apply to
>
> The A. I. Root Co., Medina, O.

Almost before the bills were out, one man said he'd half a notion to go after that hundred dollars, and I hope he will. Even if no one secures the reward, the *effect* will be good.

When I visited Mr. Elwood, seven years ago, I saw he had notices of this character posted up in the vicinity of his yards, and I believe the moral effect of it was such that the would-be thieves let his bees and honey alone because they knew the temper of Mr. Elwood ; and that, if they were once convicted, he would see that the utmost penalty of the law was imposed. In this State, at least, the penalty for stealing honey, or for tampering with hives, is very heavy ; and if we succeed in apprehending the guilty parties we propose to let the law take its full course.

THE U. S. B. K. U. ANNUAL ELECTION.

The following letter has just come to hand, and will explain itselr :

> As the annual election of the Board of Directors is approaching, I assume that nominations are in order. It seems strange that the great State of New York is not represented in that body. I have not a list of the members, but I think I am justified in saying that New York has as many members as any other State, and a great many more than some States that are represented in the Board of Directors.
>
> I understand the U. S. B. K. U. does not claim to be a representative body; but if you want to make it a success it will not do to ignore the greatest State in the Union. If any State should be represented by one or more in the Board of Directors, that State is New York. I nominate P. H. Elwood, of New York, for a Director of the U. S. B. K. U., and urge his election.
>
> Chapinville, N. Y., Dec. 9. W. F. Marks.

It is true that York State, one of the greatest honey regions in the world, is not represented in the new Union, and it certainly ought to be. While I happen to be a member myself of the Advisory Board, I have always felt that it would be better for some one in the *field* to be in that position. While it is probable that my name would not be again reconsidered, yet if there are any of my friends who had thought of voting for me again I would consider it a personal favor if they would turn those votes over to Mr. Elwood—a solid man in many ways—one who is engaged in bee keeping on a most extended scale, and one who appreciates most thoroughly some of the difficulties and problems that confront bee-keepers. I do not like to do electioneering or wire-pulling; but I do hope Mr. Elwood will be chairman of the Board of Directors for 1898.

Perhaps some of my friends will think I ought to go on again; but occupying the position I do on GLEANINGS, I can offer my great chunks of wisdom (?) just as well as if I were a member of the Board itself, and I can assure my friends that my interest in the Union will be just as great as though I were an active officer of the same. I feel that, with all my other duties, I have not the time to give the Union such intelligent attention as an officer should. Hip—hip—hurrah for P. H. Elwood!

A FUNNY MISHAP.

Many of our English cousins are enthusiastic bee-keepers, and they set as great value on their choice queen-bees (or even greater) as do our friends here in America. During the past season, so we are told, one bee-keeper over in England arranged to send to a brother bee-keeper a choice and valuable queen; and the agreement was, when it was ready to mail, a telegram was to give notice to the recipient that she was coming. Imagine the surprise of the telegraph operator when he received the following:

> "The queen will be at your place on the 5 o'clock train. Have every thing ready for her on her arrival."

The operator, it seems, knew nothing about queen-bees, and at once jumped to the conclusion that the Queen of England, by some sudden arrangement he could not understand, was to grace their little town with her royal presence. Imagine the surprise and disgust of the good people (who gathered from every direction) when the express agent held up a wire-cloth cage containing a *queen-bee!* The account does not state where the telegraph operator was with his telegram about that time.
A. I. R.

APICULTURAL JOURNALISM.

FRIEND Hutchinson, of the *Bee-keepers' Review*, says he is proud of GLEANINGS, even if it is not his journal. Here is the generous compliment he pays us:

> GLEANINGS for Nov. 15th is an unusually fine issue for even that fine journal. I have counted the engravings, and there are fifteen, while the reading is bright and sparkling, and "up to date." I am proud of GLEANINGS, even if it isn't my journal.

On another page of the same number Mr. Hutchinson gives the *Amer. Bee Journal*, another competitor of his, this *well-deserved* compliment:

> An editor will notice editorial work on a journal similar to his own quicker than will any one else; and in this connection I wish to say that I believe no bee-journal shows more careful, conscientious editorial work than does the *American Bee Journal*. By this I do not mean that it contains a large amount of editorial matter, because it does not: but there is an undefinable something about a paper that tells to the practiced eye when things have been "licked into shape," or whether they have been thrown together after the "slap-dab" style. Bro. York does not claim to have had much experience as a bee-keeper; but he is bright enough to bring to his aid those who have; and I doubt whether the *Bee Journal* was ever of much more practical value than at present. Speaking of work, I believe that Bro. York does not have a large forec, yet he gets out a weekly, and I know that he must have to put in hours of work with which we monthly fellows have no acquaintance.

How different the spirit of these utterances from those displayed by the editors of some other rival journals in other pursuits! Only the other day, in reading my bicycle journals I could not help noting the way the respective editors of those periodicals slung mud at each other, and especially how they praised their own journals, and ridiculed those of their competitors. Will Bro. Hutchinson lose subscribers from his own list who will go to the *Bee Journal* or to GLEANINGS? Not at all. I am of the opinion that the average subscriber admires that kind of spirit, and he will stay by the editor every time who shows that spirit of brotherly love—"in honor preferring one another."

MISTAKEN IDENTITY AT BUFFALO; THE BORES AT CONVENTIONS.

THE following item appears in the weekly Budget, which, by the way, is always interesting, in the *American Bee Journal:*

> Mr. D. W. Heise, one of the most respected and gentlemanly Canadians at the Buffalo convention, reports in the *Canadian Bee Journal* that at that meeting he was several times taken for Mr. Ernest R. Root, editor of GLEANINGS. He jocosely says that it sort o' inflated him, and that he may soon start a paper, to be called *Gleanings in Canadian Bee Culture*. But we think that, with proper care and sufficient time, he will recover.

It is a good thing for one to see himself as others may see him, and I am only sorry that I do not remember to have met that "twin" brother. If I did meet him, I was not aware that he had been taken for me or I for him. The next time I meet the gentleman I hope he will introduce himself as my twin brother. I am sure friend Heise doesn't need to feel flattered because of his likeness to my poor self. Many another in my shoes would do far better than I.

By the way, this is not the only instance of mistaken identity at the Buffalo convention. Two men, of about the same size and height, who attended, looked decidedly alike; and when the two sat near each other it was almost impossible to tell which from t'other. One was a quiet, genial, pleasant man; the other was always bobbing to his feet, and making himself notoriously disagreeable—always throwing out objections, and never harmonizing with the discussion. I said to the first-mentioned person, after I had learned to distinguish one from the other, "Why, you look almost exactly like ——."

"I am not flattered," said he. "I have no sympathy with his ways of doing. Such men are always a bore to a convention, and a drag to good discussion."

HIGH PRESSURE GARDENING.

HOW TO GROW A CROP OF PUMPKINS; VALUABLE SUGGESTIONS IN REGARD TO PREPARING THE GROUND FOR FARM CROPS IN GENERAL.

The picture we give of forty acres of pumpkins shows such a thrifty crop that we asked for particulars in regard to growing pumpkins for a canning-factory. The reply will be found below. For several years past, so little attention has been paid to growing pumpkins in our vicinity that the prices have ruled quite high. In fact, I have, during the past two or three months, paid 5 cts. apiece for every load that I have seen brought into our town. Where they are large and fine I have paid as much as 6, 7, and even 8 cts. each. These have all been sold for pie-making. In fact, for several years back we have been getting as much per pound for nice pumpkins as for watermelons. I suppose no great amount, of course, could be sold at these figures; but it is well for the market-gardener to grow enough to supply his customers. When I was a boy the farmers used to be glad to get a cent apiece, little and big.

FORTY ACRES OF PUMPKINS.

HOW THE "40 ACRES" WAS MANAGED.

Our land is very dry, and was not much affected by the heavy rains in August; but the drouth killed the vines four weeks ahead of time this fall, and, we believe, cut the crop 50 tons short. We harvested 554 tons from 37 acres. Thorough cultivation and plowing under green manure (rye, buckwheat, cow peas, crimson clover, etc.), we believe will bring good crops almost anywhere. We plowed under crimson clover last spring, and have another crop growing now.

We seed 20 pounds per acre, and cultivate in at last cultivation of crop, say about July 15th. Crimson clover and cow peas are our favorite manure crops. If the farmers in any county would pursue plowing under these crops for ten years we believe their county would be the banner one of the State. Every acre of cultivated crops should be sown with crimson clover. If it is not a complete success every season, we believe it will pay fully 100 per cent on the investment.

We used some air-slacked lime, potash, and phosphoric acid on the clover, but this did not show any marked gain over where none was used, and we are not prepared to say that the benefit equaled the cost.

We believe in subsoil plowing at least once in five years, and oftener if there is a surplus of horses that can be used without hiring extra help. We run the subsoil plow about eight or nine inches below the bottom of the furrow turned by a common plow. It does not turn up the subsoil, but it is lifted up and dropped back in a mellow condition, breaking up the hard crust on top of which the common plow has run for years. This gives a mellow soil about 16 inches deep, which, with the green manure, will hold moisture like a sponge during a drouth, and let off surplus water when there is too much. Some claim land leaches its fertility if this subsoil is broken up, but this has not been our experience. In laying sewers, etc., where we have dug trenches three to six feet deep, we find there is nearly double the growth over these trenches compared with the growth alongside of them where the ground is mellow only as deep as plowed. Our theory is, that, where the soil is mellow, the roots will follow after the fertility to the depth of several feet. The mellow soil acts as a catcher and absorber of fertility, while with the hard subsoil there is nothing to absorb and hold either moisture or fertility; and any getting through the hard crust below the plow is lost. The fine roots of plants can not get into the hard subsoil to use what little fertility there is. With a perfectly mellow subsoil we believe it impossible for fertility to get far enough away so that a vigorous crop of any kind will not find it. In proof of our ideas of green-manuring, etc., we submit the following crop figures:

On one field of about 12 acres of our poorest land we have grown a crop of pumpkins each season for the past three years. In 1895, 93 tons; 1896, 116 tons; 1897, 151 tons. Next spring we shall subsoil this piece and expect to get still better results. Of course, we grow special crops, pumpkins, tomatoes, etc., but the same laws of fertility, deep mellow soil, thorough cultivation, etc., we believe govern the growth of all crops.

IN REGARD TO COW PEAS.

If we can keep up the fertility of our soil with crimson clover we do not expect to use any more cow peas. When obliged to lose a cultivated crop we get three crops to plow under. Cultivate or harrow in rye on old ground in the fall; plow under in the spring; sow cow peas; plow under and sow rye in the fall, which we plow under the following spring, and plant the crop we wish to grow. Poor land can not remain poor with this treatment. H. A. CUMMINS.

Conneaut, Ohio, Nov. 29.

I wish to add emphasis to the remarks in regard to subsoil plowing. Almost every season we have one or more excessive rains; and even on our ground that is thoroughly underdrained we have had troubles with wash and from the soil getting so full of water that it settled right down like mud. I remember one spring, when we had prepared the ground up around the windmill with special pains and care. It was plowed a foot deep, and then worked up until it was soft all the way down. When a heavy rain came I stood by the window watching; and for a considerable time after the other ground was full, and the water running over the top and cutting gullies, this piece on the hill seemed to be still taking in and holding the whole freshet. Just as the shower wound up, however, I saw the ground had got all it could hold, clear down as far as our plow went. The whole piece was getting to be soft mushy mud. Finally it began to break away here and there, and my rich mellow soil, manure and all, began to start down toward the lower land, washing up valuable plants in places. The rain let up, however, before very much damage was done. Now, had this piece of ground been broken up with a subsoil plow as friend Cummins has advised, I think it would have taken up and held all the water. I know a good many have reported unfavorably in regard to subsoiling; but I think it must certainly answer two purposes when properly done. First, it prevents washing or letting the loose soil settle down again hard and compact. Secondly, it helps to hold the great mass of water, that comes during these excessive freshets, at a point where the roots of the crop can go down and reach it in time of drouth. I have tried subsoiling to some extent, and I feel just now very much like trying it again, especially for a crop of pumpkins next year, and I am pretty sure I can raise them for *considerably* less than a nickel apiece.

PRODUCING JUST SO MUCH AS YOUR MARKET DEMANDS, AND NO MORE.

When I first commenced market-gardening I had some sad experiences in producing large crops of perishable goods that could not be sold when they were ready to gather. I think I started out with about an acre of early peas. We filled our town, and then tried to sell more by putting the price away down, and finally sent them in wagons to neighboring towns, but got hardly enough to pay for the time of the man and team. I know some people do well in shipping these things to distant markets by rail; but what few experiments I have made in that line have turned out so badly that I became disgusted with that business. For instance, I made one shipment of Jersey Wakefield cabbage, extra nice. When I complained because the commission man made no returns or reply whatever, he said the cabbages sold for just about enough to pay the freight, and he could not see why there was any need of making any reply under the circumstances. Well, after that year I learned to plant just about as many peas as our market would take, say at from 20 to 40 cts. a peck, and the same way with parsnips. Once or twice we had so many we could hardly sell or give them away. After that I figured out just about how many rows I should plant the length of my creek-bottom ground, so they would all be sold by the time I wanted the ground for another purpose; and for several years I have been enabled to hit it about right on all these things that we can not gather and put away until somebody wants them.

But one thing has pleased me ; and that is, to note that the demand is steadily increasing. Last year I sold from 50 to 75 bushels of parsnips at about $1.50 per bushel, retail. The parsnips were nice, and given to the people fresh, digging them only as fast as they were wanted. Well, this season, for the first time, we have had a good demand for parsnips in the fall. We have been selling about a bushel a day for perhaps the past three or four weeks. To-day, Dec. 9, the weather is very warm and nice. There is no frost in the ground, and we have been digging our carrots and bringing into the cellar a fresh supply of parsnips. We made a mistake this year in not having carrots enough. A few years ago we used to have trouble to sell all of our crop, even at the low price of 25 cts. a bushel. This fall our first customer took almost our entire lot; and, by the way, how much money do you suppose one could get out of an acre of creek-bottom land, sown to carrots, at 25 cts. a bushel?

Shall I tell you how I harvest them? Well, we first plow a deep furrow as close to the roots as we can without cutting them. Now, if you manage just right, the next furrow will throw the carrots all out of the ground. Teach the boys to go right along walking in the furrow, and twist the tops off, leaving the tops down in the dirt. If you do not go with them they will pull the carrots out of the ground, tops and all, and then fuss to twist the top off, throwing it one way and the carrot another, whereas you will get along twice as fast if you leave the top right down in the ground where it has been turned under by the plow. Just twist off the root and toss it into the basket. When the soil is just right, carrots can be grown so thickly that they almost crowd each other out of the ground. Horses, cattle, and almost all stock, are not only very fond of them, but a moderate use of carrots along with the grain is beneficial, both to horses and cattle.

APPLES.

The Department of Agriculture has just issued a catalog of fruits recommended for the United States. It is entitled Bulletin No. 6. About four pages are devoted to apples. On these four pages 259 kinds are described, besides 17 kinds of crabs. By a very ingenious table they give size, form, color, flavor, quality, season, use, and tell where the variety originated, as nearly as possible. The size is from 1 to 10; quality 1 to 10, 10 being the largest and 10 the best. I looked over it with very much interest to see how their rating would agree with my own. They rate the Baldwin in size as 7 to 8; quality 5 to 6. In our locality we should have put the quality a little higher. But perhaps we are not acquainted with all the new kinds. Belmont is put 9 in quality—next to the head. This would agree with me exactly; and Ben Davis—now, reader, where would *you* have put *Ben Davis?* They have it 4. I think I should have put it a little higher; but people generally here in the North would agree, perhaps, with them. Benoni is 7. I tried to think of the poorest apple I knew, and turned to Fallawater. They have it 10 in *size* but 4 in *quality*. When apples are scarce, and people can not get any other, or they are not acquainted with the Fallawater, they buy it very well. One great objection is, it is not good to cook. Fall Jenneting is put 3 to 4; and I think that is about as low as they mark any thing in quality. Fall Pippin is 10 in size and 10 in quality. Whenever I think of the big apple-tree that Mrs. Root's father used to have right near the house, I make up my mind that 10 is about right, both for size and quality. Now, were I sure that Mrs. Root would never see this I think I would say I used to think farmer's *daughter* was 10 also (the very highest mark, you know). The Russian Gravenstein is marked 8 in size and 9 in quality. The Lady apple is 1 to 2 in size, 6 to 7 in quality. Maiden's Blush is 5 to 6 in size, 4 to 6 in quality. I should have put the quality a little higher. Newtown Spitzenburg is 10 in quality, so is Summer Pearmain; Winesap is 6 to 7. Yellow Newtown, or rather, Albemarle Pippin, is marked 10.

I presume this bulletin will be mailed to any one free on application. It is put out by the American Pomological Society, and is revised by T. T. Lyon. I rejoice to see such a bulletin, because it is *authority* on matters that have been so mixed up. By its aid, almost any apple-grower can decide whether he has got the names of his apples correct or not. Judges at fairs can also decide pretty correctly as to whether the apples on exhibition are correctly named. As the bulletin discusses in the same way almost every other fruit we grow, north or south, it will certainly prove to be of great value. Yesterday a carload of apples came to Medina. The price was about $3.00 per barrel, wholesale. I told the owner I would take ten barrels if he could furnish them all different. I think they came from Missouri. There are several new kinds I did not find in the list mentioned, and among them are some equal to any I ever saw or tasted. I would especially mention the Wabash Sweet and Stark.

OUR HOMES.

Abstain from all appearance of evil.—I. THES. 5:22.

The text above was brought to mind just a few minutes ago. A letter was handed to me from a good friend whose feelings had been very much wounded, and he was greatly stirred up by the way we had treated him. For a time nobody could imagine what it was that made him feel so hurt. He alluded to a letter written to him on the 18th of November; but the clerks all stoutly declared that no one had written to him a word at that time. After a good deal of time spent in investigation I found a *printed* letter had been sent him from the subscription department. He had had hard times, and was in arrears; but, notwithstanding, he had been sending us a dollar about once a year pretty regularly of late. This money had been carried to the ledger, and credited on his *old* account; and in this way his subscription account showed that he was in arrears two or three years. I found, in the middle of the printed letter, this:

> Up to date we have heard nothing from you in regard to the letter we sent you in reference to your subscription, and have therefore dropped your name from our subscription list, leaving amount due us on arrears as per statement below.

Now, the statement in the printed letter was not true, for he sent us a dollar a year ago, and another dollar recently, and he, not *noticing* that the letter was a printed one, and not written on a typewriter, thought we were ignoring the amounts he had been sending us. I hardly need tell you that, since typewriters have come in vogue, it has become quite customary for business men to have letters printed so as to look so much like a letter written on a typewriter that people are deceived. They think a business firm has taken the trouble to write them a personal letter, when it is only a printed one, such as is sent out to thousands. The reason for this is that most people will pay more attention to a personal letter than to a printed circular.

But I protest against this whole business, and have been protesting for years past. I have refused to subscribe to mission work, and have thrown the letters into the waste-basket, because it was very skillfully managed for the express purpose of deceiving or deluding the person who received it.

May I take the liberty of changing just a little the beautiful text at the head of this? I would say, "Abstain from all appearance of *deception*." It is frequently urged that some kinds of deception are harmless and innocent. We are told that there is "not one person in ten but knows at a glance that it is a printed letter." If that is so, then why take so much trouble? I do not believe it is best or wise to deceive even a child — not even the baby; and it surely is not right to deceive elderly people who may be childish. Neither is it right or wise, in my opinion, to deceive the middle-aged. If you want to send a printed circular, that can be sent out by the thousands, make it plain to every one, young and old, that it is a printed circular and nothing else. I believe this course would be the most profitable in the end, in business matters; and I am sure that, in Christian work—especially in mission work—we can not be too *sincere* and *transparent* in our acts and words. It may be that the advertisers who pay so much money to our periodicals gain riches by making deception one of the fine arts; but I am sure they do not secure clear consciences and a kind of happiness that is worth more than *all the gold in Klondyke.*

Dear Mr. Root:—Won't you please send me the copy of GLEANINGS in which you told us how you returned thanks at the table? I am here visiting a beloved sister. We used to read GLEANINGS together. It was where you told almost word for word how you prayed at the table. I have read your sermons for ten years, and am back here telling my sisters about them. The girls are working to establish family altars in their own homes. I told them there was lots of help in your paper, and about that particular one in regard to returning thanks. I can not remember the date, but it was some time in the last four years. When I came to my sister's I tore out a lot of your sermons and brought them home to them, but I haven't the most desirable ones. I took the magazine just for the sermons during the last six years. I have often wondered what religious papers you people read back there that you could throw out so many good hints. Or was it God and the holy Bible and prayer alone? I don't think that was all of it. I believe you have earthly helpers besides the help our Father in heaven has given you. Am I guessing right? MRS. M. A. TRAVIS.

Robinson, Brown Co., Kan., Nov. 15.

Some of the friends may be a little surprised that I should use the above letter with the exceedingly kind and encouraging words, when it evidently was not intended for print. Another thing, as a rule such words of commendation are best kept to one's self, as the writer evidently intended. But along with these kind words comes a most tender and pathetic plea for the old-time fashion of asking a blessing at the table, and having family worship in our homes. Dear friends, this is my last Home talk for the year 1897; and very likely a good many will discontinue, and to those it may be the last talk I shall ever give them. The thought has been coming to me, "What is the most important message I can send to the homes and home people who read GLEANINGS?" It would be something right in line with this letter in my opinion. Do not let the world with its cares—do not let the changed order of things induce you to forget Bible-reading and daily prayer. Do not let electric railways, electric lights, modern machinery, and modern ways of doing things crowd out the word of God; and do not, I beseech you, let *any thing* that this world may offer, crowd in so as to make your relations to the great Father above any more distant than they have been. May it rather be, in the language of our old hymn,

"*Nearer*, my God, to thee."

The little prayer that I suggested for use before partaking of our daily food is found in GLEANINGS for Nov. 15, 1895, page 868. It is as follows:

"O Lord, we thank thee for this pleasant and happy home. We thank thee for these our dear children. We thank thee for health and strength, and for good appetites, and for this our daily food. May it strengthen us that we may be helpful, one to another, and that we may be self-sacrificing; that we may have grace to use our strength so that selfish feelings shall be put down, together with all that is evil; and may we uphold all that is good and noble and pure, for the sake of the dear Master, our Lord and Savior Christ Jesus. Amen.

Now, dear friends, I did not intend that that prayer should be copied or used *every day*, by any means. There is only one prayer in the world that we can use in place of something of our own wording, and that is the prayer given us by the dear Savior himself when he was here on earth. The reason why I outlined the one above was to suggest some of the things we should remember to thank God for. Every man, woman, or child who has a home ought to thank God daily for that home, humble though it may be. *Any* home is better than *no* home. Some of you may think I do not know all about what I am saying; but I think I do know pretty well all the trials and difficulties that homes present.

Again, we should thank God for our parents, children, brothers, and sisters. We should remember to thank him for good health, strength and good appetites. The advertisements in newspapers constantly remind us how few there are who enjoy really good health, and can eat with impunity what is generally set before us.

Again, we need God's grace and wisdom to make a good use of strength. We need to be saved from the sin of ingratitude, from evil thoughts, and from all suggestions of the tempter; and in our daily worship we should remember the events, the anxiety, the longings, that belong peculiarly to each day. No two days are alike. As a *rule* I would try to have no two prayers alike—not even asking a blessing at the table. This is pretty hard, I know, when we think of the number of times we are called upon to give thanks in a year. Very often when I sit down to my meals, especially after I have been delayed, and prevented from being on time, I am faint and exhausted; and sometimes it is about all I can do to call up grace enough to repeat words that I have used perhaps thousands of times before. Now, please do not misunderstand me, dear friends of the Home Papers. The prayer that is repeated until it sounds almost stereotyped is better than *no* prayer at all—a thousand times better; but if we use the same words over and over, we should have to be more than human if they did not in time get to be meaningless.

It happens to be my privilege to be one of the volunteer observers on the Weather Bureau, and I enjoy studying the weather with all its varied features every day in the year.

There is not a single day but I find something to thank God for in the weather. I do not believe, dear friends, this is extravagance. T. B. Terry once said he could always find reasons to be happy when it rained, and he could also find other reasons for being happy when it did *not* rain. That is the right spirit. Let us be so loyal to our Maker, our heavenly Father, our great, good, and wise *Friend*, that we shall never be tempted to be rebellious and cross about the things we can not help, and which are unquestionably in his domain. The courts of law, you know, specify that a man is not held responsible for certain things they term "the acts of God." Now, it seems to me it is an excellent thing to remember the weather in our daily petitions, and in giving thanks. When the community in general needs rain, let us ask God for the rain that is needed, day after day, until it comes. When it comes so as to cause disaster, as it did down in the Mississippi Valley last spring, let us unite in asking him day by day to withhold the rain till it ceases; and let us, in our daily petitions, beware of confining our thoughts to our *own* little home or neighborhood. Every family reads the papers enough nowadays to know of the suffering in different parts of the world. Let us pray for these neighbors, while we remember the great Father above always; let us also always remember the chief officers of our government. Do not forget to pray for the President of the United States, no matter what political party you or he may represent; and do not forget to be loyal afterward in your talk during the day, to be consistent with your daily prayer. Be frank and free to tell *God* all your troubles. In your closet alone, remember your children, calling them by name, and the same with your friends and neighbors; and by all means remember the editor of your favorite home paper.

And this brings me to the concluding words in the question at the end of the kind letter at the head of this talk. May I address her in my answer? Dear sister, I believe my daily Bible-reading and prayer have much to do with that portion of God's Holy Spirit which you and other friends give me the credit of having received; and I know full well that there are many praying for me that I may not make a mistake nor go amiss nor be led away by *any thing*. I have been helped by the thought that many are praying for me. I have been greatly helped, also, by such letters as the one I have given. They have been coming constantly ever since this, my lifework, was commenced.

Once more, dear sister, it has been my good fortune to have kind Christian friends and helpers here at home. The dear old mother who watched my wayward steps in infancy, and again through middle life, when I was for a time led away, is near me still, although she is now 85 years of age. Many of the helpful thoughts I have given you perhaps belong to the dear wife; and now as my sons and daughters have come to maturity it gives me more joy than I can express to see them give me helpful suggestions and encouraging words May God be praised for all these things I have mentioned.[*]

Now, please take me as I mean. I do not think I mean to boast when I suggest that, had I pushed on in the direction I started something like thirty years ago, there would have been no Bible, no prayer, no Christian home, and very likely no home at all, for me. In fact, I very much doubt whether I should be living at all to speak these helpful words had it not been for the saving power of the religion of Christ Jesus. I remember yet very well how these words will strike many of you. I know it is a little unusual to speak of sacred and holy things as I do in connection with matters of every-day life; and it is only because I am anxious for your best welfare that I do so. During the past year we have discussed the matter of medicines and physicians. We have discussed science and modern inventions; we have again and again together reached the point where man's skill and wisdom end. We have seen together, all of us (I am glad to say all of us) that there is a great universe where God reigns. He made us, he placed us here. Is it not our right and privilege as well as our duty to come to him in a loyal, honest, manly way, with all our wants and troubles as well as with all our joys?

As I grow older I believe I am changing somewhat. I used to be anxious to build up trade. Yes, I am anxious now to increase the circulation of this journal; but God knows I speak truly when I say I am *more* anxious that you should make God's holy word your guide and counsellor than that you should subscribe for GLEANINGS. I am weak and human; but God is infinite. I shall soon pass away and be forgotten; but Christ Jesus will stand forevermore. If your thoughts are on *him*, and if to him you intrust the care and keeping of your children, they will not be likely to go astray. When the writer of that letter mentioned her sisters who are working to establish family altars in their own homes, it stirred my heart more than any thing else I have seen or read for a long while. I said to myself, "May God bless the dear women! They do not know—they never *can* know—the outcome of bringing up just one little family and household in the fear of the Lord."

And let me close the talk for the year by saying this to each and all: No words can describe, no tongue can tell, the good that may come to future generations, clear down through the ages, by establishing to-day in your own home some form of family worship and daily recognition of God, the loving Father; and this, dear reader, is the message your old friend is sending to you and your home, the last one of the year 1897.

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[*] In regard to religious helps, I read carefully and pretty thoroughly the Chicago *Advance*, *Sunday School Times*, and the *Golden Rule*. These papers are my Sunday reading. I also like to read pretty much all of the books in our Sunday-school library, so that I may know what our children are reading. On week days I read almost all of our agricultural papers, or at least glance over them. Some of these, as I have told you, are taking a strong stand for godliness and for righteousness. Let us stand by them in their efforts for the good of humanity.

NOTES OF TRAVEL

BY A. I. ROOT.

ON THE WHEEL.

All through the month of November I was planning a big long wheelride; but in our locality it rained almost every day, and the days it did not rain it was muddy. But I kept up my courage, and kept telling about the wheelride I was *going* to take, every morning, at breakfast, until the children laughingly begged me not to talk about it any more, because, if I did, it would be *sure* to rain. But when the sun came out bright and clear on the morning of Dec. 10 I caught fresh enthusiasm. Of course, the roads were not very good, but there was a warm wind from the south. I took the train to a station distant about a mile from a brick pavement that runs into Cleveland. There were a good many jokes about my getting over that mile without getting the shine off my boots; but, to my agreeable surprise, I found it very nice wheeling indeed.

At one place where they were making some repairs in the road one of the men said, jokingly, "If he can get down *that* bank, he is an old hand at the business, *sure*." But I rode down it without a bit of trouble. Although there were great lumps of dirt, so that it looked as if it might bother a horse to get through, it was all the way *down hill*. By skillful guiding and twisting and pushing ahead and holding back on the pedals I got through what looked like very formidable difficulties. I kept my seat, and was over the break in a trice, and when I got on that brick pavement, with the strong wind behind me—but, didn't I just spin? This "good road" is about fourteen miles long, and the only thing that marred my pleasure was the number of teams drawing heavy loads into the city all along the road. They did not mar my pleasure very much, after all, for the kind and courteous way in which they gave me room to pass fully compensated for what little hindrance I met. Not one driver in all the fourteen miles was in the least unfriendly. Several who had loads said that, if I had rung my bell a little sooner, they would have turned out for me willingly.

There is a pleasant moral right here. People are beginning to recognize the value of wheels, and the place they are to take in the future. I did not use my bell much, because that might have seemed to many people like saying, "Get out of my way there." Instead of ringing the bell I said, after starting to ride around the team, "Will you please swing your horses over just a little?" or, "Will you please slack up just a little until I get ahead?" After I got on the bricks again I always said, "I am very much obliged to you indeed." Altogether I had a most enjoyable ride in the middle of December. I returned home on the train.

Health Notes.

CONTROLLING DISEASE BY THE FOOD WE EAT.

Before giving the following extract from the *L. A. W. Bulletin*, perhaps I should explain that correspondents in that journal give their L. A. W. *number* instead of their *name*. I have been persuaded to give this communication a place because I am sure it strikes on a great truth. Not only may rheumatism be at least largely controlled by the diet, but I am strongly impressed that there is scarcely a disease that torments humanity that does not come a good deal under the same head. It is improper food or too much food that produces disease; and the only rational cure is to go back to where the mischief started. You will notice that our friend indorses the meat diet (the Salisbury lean-meat treatment) by saying he eats all the meat he wants, at least once a day.

The letter from No. 130,538, on reduction of weight by riding, is very interesting, and no doubt the drinking of large quantities of water under the condition of profuse perspiration will, if the water be pure, act to reduce the tendency to rheumatism. He admits, however, that his rheumatism is again returning. It is strange, but too true, that in this age of progress and advanced civilization, the simple facts concerning that most painful and prevalent malady, rheumatism, are not better understood.

Whether it is that doctors do not care to consider preventive means, or that people are not willing to deny themselves any thing at all, certain it is that rheumatism can be almost entirely controlled by a proper selection of food. This may come under the head of diet, but is not synonymous with starvation, as commonly assumed. Perfect digestion and assimilation of the food eaten means health, strength, and vitality; but how many of us possess it? I know hundreds who are suffering from stomach troubles, but only one man who realizes the fact. They invariably ascribe it to other causes—usually overwork. It is overwork, but not of the mental faculties, as they prefer to think. If No. 130,538 would try abstaining from sugar, grease, and starchy food—particularly fried potatoes—pastry, and fried cakes with syrup, he will find his weight decrease, and all his faculties improve in a very short time. I suffered for years for want of this knowledge, but finally obtained it upon the highest medical authority, and now enjoy better health than I ever remember, and I should like to see others equally benefited. I eat meat once a day, and all I want of it. The other two meals consist principally of corn or graham bread, and fruit stewed without sugar, or fresh fruit, than which there is no better food. The alkaloids contained in coffee upset the stomach, but that is nothing to the stomach troubles caused by the medicines commonly used for the so-called cure for rheumatism, all of which can be avoided by not eating or drinking the stuff which is the cause of the trouble.

DOSING YOURSELF WITH DRUGS WITHOUT THE ADVICE OF A PHYSICIAN.

As an illustration of the danger of this work, the following incident has just come under my notice. A person was feeling poorly; and after trying several remedies, and being "nothing better, but rather grew worse," as Mark puts it, in regard to a certain woman, he consulted an able physician. I happened to be present. After looking him over a little the doctor said:

"Have you been taking quinine to-day?"

"Yes, sir."

"How much, and how long ago?"

"I took four grains about half an hour ago."

"Is that all you have taken to-day?"

"No, I took four grains two hours before the last dose."

"My dear sir, your pulse is up to 120, while 72 is what it should be. Quinine is the very thing you ought not to touch. At the rate your heart is pounding away just now it will pound you to pieces soon. Your short, quick breath should have admonished you not to touch stimulants."

Now, this is not an unusual occurrence by any means. We have all had experience in seeing people tinker with machinery or complicated apparatus (when they knew *nothing* about the thing), in the vain hope that they might by some blunder hit the right "cog-wheel." If a machine is spoiled through mistaken kindness it is of comparatively small account; but if you think I am *wrong* when I tell you to let drugs and medicines alone, ask your family physician, in whom you have confidence, what *he* thinks about it. If somebody offers you medicine, "free of charge," do not touch it. Remember the man I told you of who planted tomato-seed because he got it free from the Seed Department. He could have purchased seed that he knew was all right, and just what he wanted, for *five cents;* but he planted the other kind in a hot-bed, got them out in his garden before anybody else, then harvested a great crop of crooked, scraggly, late tomatoes that nobody would take as a gift. Now, the medicine you are offered free of charge may be even a worse speculation. These medicines given free usually contain morphine, cocaine, chloral, or some similar drug. Of course, the patient "feels better," and wants some more medicine. But it costs $2.00 a bottle, or three bottles for $5.00. May the Lord be praised, a law has just been passed making it an offense either to sell or give away medicines containing these terrible poisons. The druggists and patent-medicine men are beginning to writhe and squirm already, because it threatens to kill their business—at least a good share of it. Why in the world this new law does not include cigarettes, I am unable to say; but I am on the "war-path" in regard to the matter.

LIGHT FOR DARK PLACES.

I tried to tell you in our last issue my convictions in regard to what was coming in the way of electric lighting. Below is something I found on a scrap of paper:

> Electric-light meters, with penny-in-the-slot attachments, promise to become popular in some places. A London company supplies current for an eight-candle-power incandescent light six hours for a penny dropped into the box, and allows the customer to take his six hours' light at once or in small daily installments, as he chooses to turn his switch.

There, friends, do you see it? By the aid of a storage-battery, with electric light attached, an apparatus can be left in every home, so that people of moderate means may have the benefits of this beautiful light by simply dropping a penny or a nickel into the slot. No expensive man will be needed to keep the books, and there can be no complaints about unfair dealing. You put your coin into the machine, and you get your number of hours of light, to be used as you want it, by pressing a button. When the storage battery is exhausted, somebody comes right to your door and replaces it with a fresh machine. I think the price can be made so low that almost every home may be thus supplied. Of course, the dynamo to charge the batteries must be somewhere near, and my belief is that the wind that blows so much of the time over our heads (and against them), especially at the season of the year when we have short days and *long nights*, will do this storing of electricity. All that is needed is an inventive genius to make the thing practicable.

THE NEW ACETYLENE LIGHT.

There have been so many inquiries in regard this that I have decided to give in full the following letter from friend Long, to whom I have referred before—see page 718.

Dear Friend:—I notice in Gleanings for Nov. 15th several articles on acetylene gas, which may be confusing to the average reader. The article referred to in the *Cosmopolitan* is somewhat misleading, if not carefully studied, as, in practice, acetylene is used in a pure state, unmixed with air, and with less than three ounces of pressure, under which conditions it is absolutely non-explosive.

The dangerous qualities of acetylene as now used have been much exaggerated. In many respects it is much safer than kerosene, city gas, or electricity. City gas is nearly as explosive as acetylene; still, with the great amount continually used, but few casualties occur, while acetylene has these important advantages—that but one-tenth or less in a bulk is used for the same light, and the strong odor of the unburned gas will always cause its presence to be known long before enough could escape to be ignitable, which fact Prof. Jacobus seems to have overlooked.

Kerosene is more dangerous than acetylene, but we have all become so accustomed to the use of kerosene that its dangerous properties are not thought of.

With properly constructed generators, acetylene is doubtless the safest illuminant we have; and the principal reason why it is thought by some to be dangerous is mentioned by Prof. Jakobus, of its having been first used in a liquid form under a pressure frequently as high as 1000 pounds to the square inch, in which form it is liable to cause mishaps.

We have been using it constantly for over a year, and feel much safer with it than in using kerosene-lamps, as, with our generator, the acetylene is in a pure state, unmixed with air, and it is impossible to have more than three ounces of pressure to the square inch, under which conditions I think even Prof. Jacobus would admit its superior safety.

There is a plain discrepancy between Prof. Jacobus' figures as given in the *Cosmopolitan;* but, even by taking his figures, acetylene at $97.50 per ton for carbide would be as cheap as gas with ordinary burners in New York city; less than one-third of the cost of electricity in New York, and much less than half the cost of gas in many places

According to careful tests by expert chemists, carbide at $80.00 per ton costs about the same as kerosene at 8 cts. per gallon or city gas at 45 cts. per 1000 feet, for the same amount of light.

As our generator requires absolutely no attention whatever for a number of weeks or even months after refilling, we can imagine nothing safer, more convenient, or cheaper than acetylene, especially for country homes; and when the quality of the light is considered in connection with its general superiority it certainly seems destined to supplant shortly other means of lighting, not only for domestic use but also for nearly every other purpose. At the present time it is being used in many homes, with the greatest of satisfaction.

Could you give me the names and dates of the periodicals to which you refer as showing acetylene to be unfitted for domestic use? I wish to keep thoroughly informed along this line. I hope to send you a portable lamp which seems to be doing nicely, in a few days. An authority I have before me states that the number of candle-power hours for $1.00 would be—incandescent electric light, 1600; illuminating gas, 2560; acetylene, 6700. D. N LONG.

La Salle, N. Y., Dec. 3.

Perhaps I should inform our readers that Mr. Long is an enthusiast on this new discovery, and he may, as would be very natural, overestimate in some of his statements. I believe him to be a good and reliable man. But our readers will have to take their chances if they invest in the new light, as you see I have not yet had an opportunity for testing the lamps. I notice this, however — acetylene seems to be taking the lead in furnishing a lamp for bicycles. My impression is, it gives a stronger light than even electricity, for lamps for this purpose; but it must be lighted with a match. In view of the disastrous fires we are having all the while, I object to matches and fire in any form where they can be avoided. With the electric lamps, we have only to press the button to make it go. It can not set fire to any thing. Yes, I object to matches and fire, even when they are used to light a pipe or cigar. But may be I am peculiar.

THE "MISSING-LETTER" FAKE.

On page 826 we put in a protest in regard to this sort of thing. It is the advertisement that you see in the papers, where a prize is offered to any one who will supply the missing letters to make out a word. The puzzle is so easy and simple that a person not really smart would guess it all at once. The swindle is in persuading ignorant people that they are *unusually smart*. When they send in their answer a reply is made that they have drawn a prize of a fifty-dollar watch and chain. But in order to get this prize they must send $5.00 for a five-years' subscription to some journal, etc. I need not detail the rest of the ingenious evasions and subterfuges to rob credulous people of their money. In one of the dailies I notice the following:

> The postal authorities have decided that all the "missing-letter" contests, where prizes are offered, are lotteries, and newspapers containing such advertisements must be excluded from the mails.

One wonderful thing in regard to this whole disgraceful scheme is that it has been pushed largely by religious periodicals. May God help us to better defend the sacred name of Christ Jesus — the name the religious press should especially hold up and protect.

"WATCH POUDER'S AD"

SEE THAT WINK?
BEE SUPPLIES.

Root's Goods at Root's Prices.

Pouder's Honey-Jars and every thing used by bee-keepers. Low freight rates; prompt service. Catalog free.

WALTER S. POUDER,
512 Mass Ave., Indianapolis, Ind.

No cheap Queens to sell; but the best.

Golden 5 band, or 3 band from imported mother. Untested, 75 cts.; tested, $1.00.

L. BEAUCHAMP, Box 613 San Antonio, Texas.

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CALL OR WRITE. ADVICE FREE.

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BURPEE'S SEEDS GROW!

Write a postal card **to-day** for
Burpee's Farm Annual for 1898.
Brighter and better than ever before.
W. ATLEE BURPEE & CO., Philadelphia.

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Prosperity.

It is here and still coming. So are the **carloads of bee-keepers' supplies** coming from The A. I. Root Co.'s to my distributing points, thus enabling me to sell at their wholesale and retail prices. I keep the best of every thing you need. Send for my illustrated 36-page catalog FREE.

GEO. E. HILTON,
FREMONT, - - - MICHIGAN.

DON'T FAIL, Try Again.

Send for our 36-page catalog full of information about bees, hives, bee-fixtures of all kinds, new improvements ahead. Keep up with the times.

A. I. Root Co.'s Goods by the Carload

kept in stock. Shipped to you on short notice at less freight. Prepare early for the coming season.

JNO. NEBEL & SON, High Hill, Mo.

MUTH'S HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
ROOT'S GOODS AT ROOT'S PRICES,

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "**Practical Hints**" will be mailed for 10 cts. in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

FARM BEE-KEEPING.

The only bee-paper in the United States edited exclusively in the interest of the farmer bee-keeper and the beginner is THE BUSY BEE, published by

Emerson T. Abbott, St. Joseph, Mo.

Write for *free sample copy now.*

Queens, Untested queens, 50c each; tested, 75c; Breeders, $2. Either leather or golden. My golden breeders breed all 5-banded bees.
W. H. LAWS, - Lavaca, Ark.

The A. I. Root Co.'s Goods At Their Prices.

Including their discounts for goods wanted for use another season. It will pay you to send me list of goods wanted.
Cash for beeswax. **M. H. HUNT, Bell Branch, Mich.**

FOR SALE.—My entire stock of bees and supplies at a bargain. Italian stock. I have a large queen trade and will sell in whole or part. Address at once.
THEODORE BENDER, Canton, O.

Almost Given Away to Introduce
"Good Luck" Collection.

THE indispensable, wide-awake, money-saving FARM JOURNAL, one year, with large $1.00 box of useful garden seeds, containing large packets of the VERY BEST Beets, Cucumbers, Radishes, Tomatoes, Beans, Melons, Giant Prize Pansies—fifty lovely varieties, Vegetable Peach—a vegetable wonder, delicious for preserves, pies, etc., matures anywhere in 90 days—and lots of other choice vegetable and flower seeds, including the best novelties. ALL THE ABOVE sent postpaid with my illustrated catalog for only **30 Cts.** (cash, money-order, or stamps).

Address

A. F. COOK, Seedsman, = = Hyde Park, N. Y.

In writing advertisers please mention GLEANINGS.

POULTRY-RAISERS AND ALL, $6.00 FOR $2.50

Christian Herald, printed in colors, largest and best religious weekly in the world	$1.50
American Agriculturist, best 28-page illustrated farm and market weekly	1.00
Am. Agriculturist Year-book and Almanac, over 600 pages, worth	1 00
New York Weekly Tribune, best 20-page newspaper in the United States	1.00
Poultry Keeper, 20 pages, printed in colors. It leads, others follow	.50
P. K. illustrator, No. 1, 100 illustrations, poultry-houses, incubators, brooders, etc	.25
P. K. illustrator, No. 2, 75 illustrations, artificial incubation, care of chicks, etc	.25
P. K. illustrator, No. 3, poultry diseases, gapes, roup, cholera, moulting, etc	.25
P. K. illustrator, No. 4, judging fowls, description of breeds, mating, points, etc	.25
For only $2.50 we will send these 4 great papers 1 year, and the five books, grand total	$6.00

Sample P. K. with other offers free. **POULTRY KEEPER CO., Box 37, Parkesburg, Pa.**

When writing advertisers please mention GLEANINGS.

We PAY FREIGHT is only **one** of **Stark 12 Challenge Points**—the full 12 plainly show WHY Stark Bro's **grow and sell the most trees.** Then, we **will not cut quality** no matter how LOW our price If interested in trees or fruits drop postal for new edition; finest, most complete yet issued **STARK FRUIT BOOK** sent free. **STARK BROS, Louisiana, Mo. Stark, Mo. Rockport, Ill. Dansville, N.Y.**

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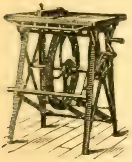
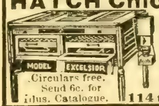


Read what J. I. PARENT, of Charlton, N. Y., says — "We cut with one of your combiued Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalog and price list free. Address W. F. & JOHN BARNES, 545, Ruby Street, Rockford, Ill.

When more convenient, orders for Barnes' Foot-power Machinery may be sent to

THE A. I. ROOT CO., Medina, O.



HATCH Chickens BY STEAM—With the MODEL EXCELSIOR Incubator

Simple, Perfect, Self-Regulating. Thousands in successful operation. **Lowest priced first-class Hatcher made.**

Circulars free. Send 6c. for illus. Catalogue.

GEO. H. STAHL, 114 to 122 S. 6th St, Quincy, Ill.

START IN BUSINESS!

HATCH THOUSANDS WITH THE PRAIRIE STATE INCUBATOR

Send for Catalogue. 200 FIRST PREMIUMS.

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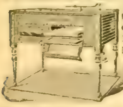
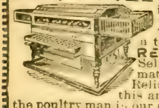


THE SUCCESSFUL INCUBATOR

is the standard machine for hatching strong, healthy chicks. Self-regulating, patent turning trays, drying room for chicks, non-explosive lamp—just a few of its good points. Sold under positive guarantee to work perfectly. Beautifully made and durable. Our 128 page catalogue describes them fully; tells many things about poultry raising you should know. Mailed for 6 cts.

DES MOINES INC. CO. Box 503 DES MOINES, IA.



NEVER BEATEN

in all the many shows in which it has participated, there must be something in the superiority claims of the **RELIABLE INCUBATOR** Self regulating, entirely automatic, you put in the eggs, the Reliable does the rest. All about this and many things of value to the poultry man is our new book. Send 10 cts. for it.

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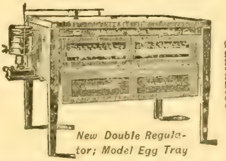

Do You Want An Incubator?

An Honest Machine, Honestly Built,

Sold Under a Positive Guarantee.

New Double Regulator; Model Egg Tray

"NEW AMERICAN."

Want Our Catalogue?

It's a pretty book of 68 pages, finely illustrated; worth dollars to every poultryman. A 2c stamp gets it.

GEO. J. NISSLY, SALINE, MICH.

In writing advertisers mention GLEANINGS.

SPECIAL NOTICES FROM BUSINESS MANAGER

AUTOMATIC SAW-GUMMER.

We have had for a number of years a Covel automatic saw-gummer for sharpening small circular saws, both rip and cut-off. Having recently put in a larger band resaw we also purchased a combined automatic gummer, which will take both band and circular saws. This renders the first gummer of no use to us. We paid $150 for it new, and will sell it now for $30, crated, and free on board cars here. Shall be pleased to give further particulars to any one interested.

HONEY MARKET.

We have on hand all grades of comb honey at prices mentioned in Dec. 1st GLEANINGS. We can make a special low price on several hundred pounds of No. 1 white, in 24-lb. cases, to any one who can use somewhat irregular combs. These are not bad, but hardly what we like to send out as regular A No. 1. If interested, write us in regard to the lot. Our A No. 1 and fancy amber grades are especially desirable. These are not dark, but are nearly equal to white honey, and the finish and style of putting up is the very best.

The price of extracted remains unchanged. We are still open for offers on choice clover extracted honey; have secured some, but want to get track of more in 60-lb. cans, if to be had in that shape, at a price which we can pay.

FENCES, OR CLEATED SEPARATORS.

We are receiving a great many inquiries, orders for samples, and some good-sized orders for the new fences. We are having some new illustrations made showing the different ways of using these fences, which we hoped to print in this issue; but our engravers were so crowded we could not get them in time. We will show them in the Jan. 1st issue. From many of the letters and orders received, it is evident that the use of these fences is not well understood, or more care would be taken to state just how you expect to use them. We gave a warning in regard to this a month ago; but as the special notice containing this warning was over among the advertising pages, many did not see it. Even Dr. Miller, the "Straw" man, overlooked it. We would advise you to look it up and read it. The regular fence to be used with plain section-holders and 4¼-inch sections is 17½ inches long, and has end standards 4½ inches long, $\frac{5}{12}$ inch thick, and ½ inch wide, and will be known as the H fence. Price $1.00 per 100; $9.00 per 1000. The same fence, with end standard 4¼ long and ⅜ wide, making it 17¼ inches long, is used with 4¼ sections on T tins as we now make them, with ¼-inch upright. To use with old T tins as formerly made, they will need to be grooved across the bottom edge ¼ inch deep to let them down to place over the T tin. These fences without the cross-grooves will be known as K fences, and the price will be the same as H fences. To use in connection with the old-style slotted section-holder with the plain sections requires a fence with the slats projecting beyond the end standards. The end standards, like the intermediate ones, are, on this style fence, in two parts attached to the slats, and are ¼ inch wide by 4¼ inches long, projecting below ¼ inch, and even on top. The full length of this fence is 18 inches; but the distance between the outside edges of end standards on the two opposite ends is just 17 inches, so that these standards come inside of the section-holder ends against the edge of the plain section. The fence is supported by the end standards resting on the section-holder bottom just inside the section-holder end, and the slats projecting beyond the end standards come between the section-holder ends. See illustration in Trade Notes, this issue, which is not correct, because it does not show the slats projecting beyond the end standards. This fence will be called the J fence, and will be sold at $1.20 per 100; $10.00 per 1000.

Here, then, are three fences, all different, and yet all for use with the 4¼-inch plain section. There are other kinds of supers and fixtures for the 4¼-inch sections, which will require fences still different from those described. If you have taken in all the foregoing you begin to perceive the necessity of being very particular to designate just how your fences are to be used, when you order, if you would be sure to get what you want. Now, you can cut a K fence from an H fence, but neither will make a J fence; and you can not easily make either out of a J fence. We have just received an order for 2000 plain sections and 300 fences "to fit the ordinary Dov. super which section-holders have been used in." As no plain section-holders are ordered, it is not quite clear whether the party intends to make these or to use the old slotted ones; and you see it makes a big difference when we fill the order. I mention this case only because here is where the greatest difficulty is going to be, and where the greatest care will be needed in making your orders.

There are other fences which we will regularly furnish. For instance, the I fence for the Ideal super, with the 3⅝x5x1½ plain sections. This arrangement will be more fully described and illustrated in next issue. This fence is 18⅛ inches long, with end standards 5⅜ inches long, and ⅜ inch wide. Seven of these, with six straight slats, ⅜x1½x18⅛, and 30 sections of above size just fit into a deep super, 8-frame size, and the sections hold just a pound of honey. Notice that you get 30 instead of 24 into an 8-frame super. The fence for the Ideal super will be the I fence, and the price will be $1.25 per 100; $11.00 per 1000. Then there are the fences, both single and double cleated, for the Danzy hive, with 4x5 sections, at $1.50 per 100, $13.00 per 1000. Another point of importance to make a note of is that, in each super, we use one more fence than we do section-holder or rows of sections. That is, the fence acts as a follower, and one is used on each side of the super. This serves a double purpose. It avoids putting cleats on the super as well as secures the advantage of the Pettit perforated and cleated follower which has been strongly recommended to secure as well-filled sections on the outside as in the center. It also does away with the follower-board. In the plain no-bee-way section, the standard width for 4¼ square and the 3⅝x5 will be 1½ inches. This width, with the fences having cleats ⅙ inch thick, will hold the same amount of honey as the regular 1⅞. If, therefore, you do not specify the width we will send 1½ inch. The width to correspond with the regular 1¾ or 7-to-foot will be 1⅜ plain. In figuring out what width of plain section you wish to order to use in connection with the fences, and to hold the same amount of honey as the regular slotted section, you have simply to deduct from the width of the regular slotted section the thickness of two cleats, which is $\frac{4}{12}$ exact, or $\frac{5}{16}$ full. The whole fence is $\frac{5}{12}$ inch thick, or $\frac{7}{16}$ scant.

We have just printed on our new press 120,000 seed catalogs for A. T. Cook, Hyde Park, N. Y. We notice on the first page, which, by the way, is very handsomely gotten up, the following:

"I have been for twenty years in the seed business, and I do not know that I have a single dissatisfied customer."

Now, then, friends, if friend Cook has made a mistake in the above, you can call him to account.

CONVENTION NOTICE.

The annual meeting of the California State Bee-keepers' Association will be held at Los Angeles, on Monday, Jan. 10, 1898, commencing at 2 P.M.

The California Bee-keepers' Exchange will meet in annual session at Los Angeles, on Tuesday, Jan. 11, at 2 P.M. A full attendance of members is desired. Mr. Thos. Wm. Cowan, editor of the *British Bee Journal*, will be present. The attendance of Thomas G. Newman is also promised. A. J. COOK, Pres.

J. H. MARTIN, Sec.

COLORADO APIARISTS, TAKE NOTICE.

The Colorado State Bee-keepers' Association will hold its annual convention in the State Capitol building, Denver, Jan. 17, 1898. Let every apiarist in the State, who can, be at that meeting. Whether you can be at the meeting or not, write to me just as soon as you read this. First, I want your *name and address*, very plainly written. It is very likely that the association will have something to communicate to you that will be to your and others' interests, so we want your name and address sure. With the address tell me what topics you want discussed at the meeting, or any other business you want transacted. Any others—persons or associations—having business with this association will please communicate with our State Secretary, Mr. Frank Rauchfuss, Elyra, Col., or with myself.

R. C. AIKIN,
Pres. Col. State Bee-keepers' Association.
Loveland, Col.

I. J. STRINGHAM,

105 PARK PLACE,

NEW YORK,

keeps in stock a full line of popular

APIARIAN SUPPLIES,

which are first-quality, both in material and workmanship.

Celebrated Wisconsin Basswood Sections, Dadants' Foundation.

HONEY-JARS, 1-lb., square, with corks, $4.50 a gross; discount on quantity.

Catalog free, giving discount for early orders.

Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

NOT FOR SALE. Why do the largest bee-keepers in the world use Bingham Smokers and Uncapping-knives 19 years? Such men know a best thing when they use it. While we have the only exclusively smoker-factory in America, we don't advertise it. It is not for sale. But we do, and have 19 years, made exclusively Bingham smokers and honey-knives. If you get a high-priced Bingham smoker and honey-knife you will have the best as long as you take good care of them. They never go out.

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CHAS. ISRAEL & BROS.,

486, 488 & 490 Canal St., Corner Watts St., N. Y

Honey and Beeswax.

Liberal Advances Made on Consignments.
Wholesale Dealers and Commission Merchants.
Established 1875.

CALIFORNIA. Mountain bee ranch for sale. Good location; telephone connection with three railroad stations.

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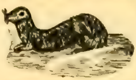
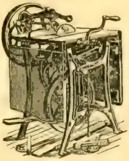


Send for free price list of **White and Brown Ferrets, Pure Italian Bees, and Scotch Collie Pups.**

N. A. KNAPP, Rochester, Ohio.



One Man with the UNION COMBINATION SAW

Can do the work of four men using hand tools in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging Up, Jointing Stuff, etc. Full line of Foot and Hand Power Machinery. *Sold on trial. Calalog free.* 1-24ei

Seneca Falls Mfg. Co., 44 Water St., Seneca Falls, N. Y.

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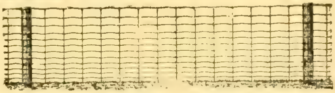

"Cry No Herring

'till you have it in the net." The Dutch proverb is right. As we have before remarked, the only U. S. patents existing on the use of **continuously coiled** spring wire for fencing, are owned by the

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

In writing advertisers mention GLEANINGS.

BOWEN CABLE STAY FENCE CO

16 to 24 cts. Per Rod.

$10 For a machine to build the cheapest strongest and best fence made of wire. No royalties, no farm rights. machine easily and quickly operated by any farmer.

Send for large circulars

Strongest Combination

NORWALK, O.

In writing advertisers mention GLEANINGS.

BEE-SUPPLIES.

We have the best-equipped factory in the West. Capacity—one carload a day; and carry the largest stock and greatest variety of every thing needed in the apiary, assuring **best** goods at the **lowest** prices, and prompt shipment.

Illustrated Catalog, 72 Pages, Free.

We also manufacture Tanks of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free.

Address **E. KRETCHMER, RED OAK, IOWA.**

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BETTER THAN KLONDIKE GOLD, $3.60 FOR $1.

N. Y. Weekly Tribune, greatest 20-page newspaper in U. S.	$1.00
Young People's Weekly, religious, colors, 12 pages, size Youth's Companion	.60
Farm Journal, best 24 page farm paper; most popular in the United States	.50
Poultry Keeper, 20 pages, printed in colors. It leads; others follow	.50
P. K. illustrator No. 1, 100 illustrations, poultry-houses, incubators, brooders, etc	.25
P. K. illustrator No. 2, 75 illustrations, artificial incubation, care of chicks, etc	.25
P. K. illustrator No. 3, poultry diseases, gapes, roup, cholera, moulting, etc	.25
P. K. illustrator No. 4, judging fowls, description of breeds, mating, point , etc	.25
For only $1 we will send these 4 papers one year and 4 books, postpaid, grand total	$3.60

Sample P. K. with other offers free. **POULTRY KEEPER CO., Box 37, Parkesburg, Pa.**

When writing to advertisers please mention GLEANINGS.

Gleanings in Bee Culture and American Agriculturist.

Weekly.

BOTH ONE YEAR ONLY $1.25.

By special arrangement with the publishers, we are enabled to offer the American Agriculturist in combination with GLEANINGS IN BEE CULTURE at the unparalleled low rate of $1.25 for both papers one year. The American Agriculturist is published in five editions. The N. E. Homestead, the Eastern, Middle, and Southern editions of American Agriculturist, and the Orange Judd Farmer. Each contains matter relating to its own locality, as well as the latest and most accurate market reports for the country in general. It has departments relating to all branches of farming, articles written by the most practical and successful farmers, supplemented with illustrations by able artists. Short stories, fashions, fancy work, cooking, young folks' page, etc., combine to make a magazine of as much value as most of the special family papers.

A sample copy will be mailed FREE by addressing AMERICAN AGRICULTURIST, Columbus, O., or New York, N. Y.

TAKEN separately these two papers cost $2.00, consequently every subscriber under this offer will get

$2.00 IN VALUE FOR $1.25.

Premium Books. For 10 cents extra, as postage, you can have your choice of any of the following standard books FREE: "Profits in Poultry," "Farm Appliances," or "Farmer's Almanac" (ready December 15). Send your subscriptions direct to

THE A. I. ROOT CO., Medina, Ohio.

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